

Goulburn Liverpool (NSW) Pty Ltd
C/ Gus Fares Architects

Detailed Site Investigation 17 – 23 Goulburn Street, Liverpool, NSW



P1505008JR03V01
March 2017

ENVIRONMENTAL



WATER



WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT
MANAGEMENT



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Document and Distribution Status								
Author(s)			Reviewer(s)		Project Manager / Director		Signature	
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Revision No.	Status	Release Date	Document Location					
			File Copy	Gus Fares Architects	Kanebridge P/L			
1	DRAFT	03.03.17	1P, 1E	1P	1P			
1	FINAL	16.03.17	1P, 1E	1P	1P			

Distribution Types: F = Fax, H = Hard copy, P = PDF document, E = Other electronic format. Digits indicate number of document copies.

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1 Introduction

1.1 Overview

This report prepared by Martens and Associates (MA), on behalf of Goulburn Liverpool (NSW) Pty Ltd C/- Gus Fares Architects ("the Client") documents the findings of a detailed site investigation (DSI) to support a development application (DA) for a proposed nine storey residential flat building development with two level basement carpark at 17 – 23 Goulburn Street, Liverpool, NSW. The site includes Lots 1, 2, 3 and 4, DP13932.

A preliminary site investigation (PSI) was previously completed by MA (MA, 2015a) and should be read in conjunction with this report.

1.2 Objectives

The objective of this report is to assess potential site contamination identified in the PSI, where access is available, and determine site suitability for the proposed site development.

1.3 Scope of Works

The scope of works includes:

- Review of PSI (MA, 2015a).
- Intrusive soil investigation and soil sampling program where access is available, targeting areas of environmental concern (AECs) outlined in PSI (MA, 2015a).
- Laboratory analyses of selected samples for identified contaminants of potential concern (COPC) and assessment against site acceptance criteria (SAC).
- Preparation of a report in general accordance with the relevant sections of ASC NEPM (1999, amended 2013), NSW OEH (2011) and DEC (2006).

1.4 Reference Guidelines

This assessment is prepared in general accordance with the following guidelines:

- NSW OEH (2011) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.

- NSW DEC (2006) 2nd Ed. Contaminated Sites: Guidelines for the NSW Site Auditor Scheme.
- ASC NEPC (1999, amended 2013) National Environmental Protection Measure, (NEPM 1999, amended 2013).

1.5 Abbreviations

ABC – Ambient background concentration

ACM – Asbestos containing material

AEC – Area of environmental concern

AF – Asbestos fines

ASC NEPM – Assessment of site contamination (National Environmental Protection Measure)

BGL – Below ground level

BTEX – Benzene, toluene, ethyl benzene, xylene

COPC – Contaminants of potential concern

CSM – Conceptual site model

DEC – NSW Department of Environment and Conservation

DP – Deposited Plan

DQI – Data quality indicators

DQO – Data quality objective

DSI – Detailed site investigation

EIL – Ecological investigation levels

EPA – NSW Environmental Protection Authority

EQL – Estimated quantitation limit

ESL – Ecological screening levels

FA – Friable asbestos

GSW – General solid waste

HM – Heavy metals

LGA – Local government area

LCC – Liverpool City Council

MA – Martens and Associates Pty Ltd

mbgl – Metres below ground level

NATA – National Association of Testing Authorities

OCP – Organochloride pesticides

OEH – NSW Office of Environment and Heritage

OPP – Organophosphate pesticides

PACM – Potential asbestos containing material

PAH – Polycyclic aromatic hydrocarbons

PCB – Polychlorinated biphenyl

PSI – Preliminary site investigation

RPD – Relative percentage difference – difference between two values
divided by the average

SAC – Site acceptance criteria

SAQP – Sampling analytical and quality plan

SOP – Standard operating procedure

TCLP – Toxicity characteristic leaching procedure

TRH – Total recoverable hydrocarbons

UST – Underground storage tank

VHC – Volatile halogenated compounds

VOC – Volatile organic compounds

2 Site Background Information

2.1 Site Location and Existing Land Use

General site information is summarised in Table 1 and site location and general surrounds shown in Attachment A.

Table 1: General site information.

Lot/DP and site address	17 – 23 Goulburn Street, Liverpool, NSW (Lots 1,2,3 and 4, DP 13932).
Investigation Area	2871.5 m ² (site plan by Gus Fares Architects)
Local Government Area (LGA)	Liverpool City Council.
Current land use	Residential.
Proposed land use	High density residential.
Surrounding land uses	Residential.
Expected geology and soil landscape	The Penrith 1:100,000 Geological Series Sheet 9030 (NSW Dept. of Mineral Resources, 1991) indicates that the site is underlain by Bringelly Shale, consisting of shale, carbonaceous claystone, laminite and coal in parts. The NSW Environment and Heritage eSPADE website identifies the site as having soils of the Blacktown soil landscape, described generally as shallow to moderately deep hardsetting mottled texture contrast soils, red and brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and in drainage lines.
Environmental receptors	No defined natural surface drainage lines were observed on the allotment or on neighbouring allotments.
Human receptors	Neighbouring residential developments. Future residents and site workers / builders.

2.2 Hydrogeology

Review of NSW Department of Primary Industries – Office of Water database indicated one groundwater bore within 1000 m of the site (Table 2). Groundwater bore location is shown in Figure 2 (Attachment A).

Table 2: Available hydrogeological information.

Groundwater Bore Identification	Direction and Distance	Depth To Groundwater (mBGL)	Intended Use	Water Bearing Zone Substrate
GW058697	South east, 1000 m	8.5	Test Bore	Sand

From review of the information in Table 2, the nearest groundwater well is approximately 1km to the southeast and used as a test bore, with groundwater observed at 8.5 m below ground level (mbgl). Further investigation would be required to determine site hydrogeology if required. A site walkover inspection did not identify any waterlogged areas or natural drainage lines.

A preliminary geotechnical investigation by MA (MA 2015), with boreholes to 10.1 m bgl, did not encounter groundwater.

3 Previous Site Investigation and Conceptual Site Model

3.1 PSI Summary

A PSI (MA, 2016) has been completed for the site which provided an account of potential onsite contamination. A summary of key findings is outlined in Table 3.

Table 3: Summary of previous site investigations.

Investigation Details	Investigation Task and Finding
Scope of works	- Research and review of available site information including EPA records, Council records and historic aerial photography. - Site walkover inspection. - Preparation of a PSI in general accordance with ASC NEPM (1999, amended 2013).
Current and historical site records key findings	- Council records show addition of a garage, swimming pool and development alterations for medical use. - Two OEH records exist for the Liverpool area, however neither is expected to have impacted the site. - A review of aerial photography suggests the site has been used for residential purposes since at least 1955.
Site walkover key findings	A walkover inspection (17 November 2016) provided the following observations: - Brick and tile dwelling and garage on 17 Goulburn Street. - Concrete slab/carpark on 17 and 19 Goulburn Street. - Weatherboard dwellings on 19, 21 and 23 Goulburn Street. - Weatherboard shed on 19 Goulburn Street. - Metal sheds on 19 and 21 Goulburn Street. - One stockpile of general refuse on 23 Goulburn Street.

3.2 Conceptual Site Model

3.2.1 Overview

The conceptual site model (CSM) has been developed based on information documented in the PSI (MA, 2015).

3.2.2 Areas of Environmental Concern

Our assessment of site AECs and COPCs (Table 4) is made on the basis of available site history, aerial photograph interpretation and site walkovers.

Table 4: Areas of environmental concern and contaminants of potential concern.

AEC ¹	Potential for Contamination	COPC	Contamination Likelihood
A – Dwellings ²	Pesticides may have been used underneath dwellings. Dwelling construction may include ACM and/or lead based paints.	HM, OCP/OPP and asbestos	Medium
B – Former/current sheds ²	Sheds may currently (or have previously) stored fuel, oils, asbestos sheeting (PACM), pesticides and/or been treated with pesticides (pest control). Shed construction may include ACM and/or lead based paints.	HM, TRH, BTEX, PAH, OCP/OPP and asbestos	Medium
C – Stockpiles and general refuse.	Contaminants from unknown contents of stockpiles and general refuse may have spilt or leaked onto underlying soil. Asbestos may be included in the waste.	HM, TRH, BTEX, PAH, OCP/OPP and asbestos	Medium – high
D – Site filling of former in-ground pool	Fill material of unknown origin and quality.	HM, TRH, BTEX, PAH, OCP/OPP and asbestos.	Medium
E – Hardstand area	Possible fill for levelling and possible heavy metal and hydrocarbon impacts from vehicle use.	HM, TRH, BTEX, PAH, OCP/OPP and asbestos	Low

Notes

¹ Locations identified on AEC map in Attachment A, Figure 3.

² AEC extents 1m from outer wall/eave of structures.

3.2.3 Sensitive Receptors and Exposure Pathways

Table 5 provides a summary of identified sensitive receptors and potential exposure pathways connecting receptors to identified AEC / COPC outlined in Table 3.

Table 5: Summary of receptors and potential pathways.

Receptor	Pathway
<u>Human Receptors:</u>	
o Future site occupants.	o Dermal contact.
o Site visitors.	o Ingestion of potentially contaminated soil.
o Site workers during any future construction works.	o Inhalation of airborne contaminants.
o Surrounding offsite occupants.	o Migration of pollutants via site surface.
<u>Environmental Receptors</u>	
o Site flora.	o Migration of contaminated runoff.
o No defined natural surface drainage lines were observed on the allotment or on neighbouring allotments.	o Direct contact with site flora.

4 Sampling, Analytical and Quality Plan (SAQP)

A SAQP has been developed to ensure that data collected for this DSI is representative and provides a robust basis for site assessment decisions. Preparation of the SAQP has been completed in general accordance with ASC NEPM (1999, amended 2013) methodology and includes:

- Data quality objectives.
- Sampling methodologies and procedures.
- Field screening methods.
- Sample handling, preservation and storage procedures.
- Analytical QA/QC.

4.1 Data Quality Objectives (DQO)

Data quality objectives (DQO) have been prepared as statements specifying qualitative and quantitative data required to support project decisions. DQO have been prepared in general accordance with NSW DEC (2006) guidelines and are presented in Table 6.

Table 6: Data quality objectives for the assessment of soil investigations.

Step 1 Stating the Problem	The proposed development will be used for high density residential purposes and will therefore be required to meet criteria of residential land use with limited access to soil. This DSI is required to assess risk posed by potentially contaminated soil to onsite and offsite sensitive receptors.
Step 2 Identifying the Decision(s)	Historic investigations have identified AECs which may be the source of contamination including former and current dwellings and sheds, former pool, stockpiled material and fill material underneath hardstand areas. To assess the suitability of the site for future residential use, decisions are made based on the following questions: ○ Is site soil quality suitable for the intended high density residential land use? ○ Has previous or current site use impacted the quality of site soils posing a human health risk during intended future land use including construction phase? ○ Do site soils require remediation or management to prior to onsite residential land use?
Step 3 Identification of Inputs to the Decision	The inputs to the assessment of site soil quality will include: ○ Soil sampling at nominated locations (where access is available) across the site. ○ Laboratory analytical results for relevant COPC. ○ Assessment of analytical results against site suitable human health and ecological risk criteria.
Step 4 Study Boundary Definitions	Study boundaries are as follows: ○ Lateral – Lateral boundary of the assessment is defined by the site boundary as indicated in Attachment A. ○ Vertical – Vertical boundary will be governed by the maximum depth reached during subsurface investigations and proposed bulk excavation levels (7 mBGL) ○ Temporal – At this stage of investigation, only preliminary site investigations and geotechnical investigations have been undertaken.
Step 5 Development of Decision Rules	The decision rule for this investigation area as follows: If the concentration of contaminants in the soil data exceeds the adopted assessment criteria; an assessment of the need to further investigate, remediate and or manage the onsite impacts in relation to the proposed development will be undertaken.
Step 6 Specification of Limits on Decision Errors	Guidance found in ASC NEPM (1999 amended 2013) Schedule B2 regarding 95% upper confidence limit (UCL) states that the 95% UCL of the arithmetic mean provides a 95% confidence level that the true population mean will be less than or equal to this value. Therefore a decision can be made based on a probability that 95% of the data collected will satisfy the site acceptance criteria. A limit on decision error will be 5% that a conclusive statement may be incorrect.
Step 7 Optimisation of Sampling Design	Proposed sampling locations shall provide even coverage across identified AEC on the site (with consideration to the existing development constraints). Sampling shall attempt to ensure that critical locations are assessed, sampled, and analysed for appropriate contaminants of concern. Soil sampling locations were set using a combined judgemental and grid pattern across the site (access permitting).

4.2 Data Quality Indicators (DQI)

In accordance with NSW DEC (2006), the investigation data set has been compared with Data Quality Indicators (DQI) outlined in Table 7 to ensure that collected data meets the project needs and that DQOs have been met.

Table 7: Data Quality Indicators.

Assessment Measure (DQI)	Comment
Precision – A measure of the variability (or reproducibility) of data.	Precision is assessed by reviewing blind field duplicated sample set through the calculation of relative percent difference (RPD). Data precision is deemed acceptable where RPDs are less than 30%. Exceedance of this range is still considered acceptable where: - Results are less than 10 times the laboratory EQL. - Heterogeneous materials are sampled.
Accuracy – A measure of the closeness of reported data to the "true value".	Data accuracy is assessed by: - Method blanks. - Field spikes and blanks. - Laboratory control samples. - Matrix spikes.
Representativeness – The confidence that data are representative of each media present on the site.	To ensure data representativeness the following field and laboratory procedures are followed: - Ensure that the design and implementation of the sampling program has been completed in accordance with MA standard operating procedures (SOP). - Blank samples shall be utilised during field sampling to ensure no cross contamination or laboratory artefacts. - Ensure that all laboratory hold times are met and that sample handling and transport is completed in accordance with MA SOP.
Completeness – A measure of the amount of usable data from a data collection activity.	To ensure data set completeness, the following is required: - Confirmation that all sampling methodology was completed in general accordance with MA SOP. - COC and receipt forms. - Results from all Laboratory QA/QC samples (Lab blanks, matrix spikes, lab duplicates). - NATA accreditation stamp on all laboratory reports.
Comparability - The confidence that data may be considered to be equivalent for each sampling and analytical event.	Data comparability is maintained by ensuring that: - All site sampling events are undertaken following methodologies outlined in MA SOP and published guidelines. - NATA accredited laboratory methodologies shall be followed on all laboratory testing.

4.3 Investigation and Sampling Methodology and Quality Assurance / Quality Control

Site investigation and soil sampling methodology (Table 8) was completed to meet the project DQOs.

Table 8: Investigation and sampling methodology.

Activity	Detail / Comments
Fieldworks	Intrusive subsurface investigations were undertaken on 24 January 2017, and involved the excavation five boreholes using a 4WD truck-mounted drill rig with solid flight augers. 30 surface samples were collected from the site using a hand spade.
Soil sampling	Soil sampling was completed by the supervising MA environmental engineer. Each sample was placed into a laboratory-supplied, acid-rinsed 250mL glass jar, labelled with a unique identification number and no headspace to limit volatile loss. A clean pair of disposable gloves was used when handling each sample.
Sample compositing	No sample compositing was undertaken for this investigation.
QA / QC sampling	Duplicate samples were collected at a rate of approximately 1 in 10 samples for intra-laboratory analysis. 3 soil duplicate samples were collected during investigations. Blank and trip spike samples were utilised during sampling to assess sample storage effectiveness.
Sample handling and transportation	Sample collection, storage and transport were conducted according to MA SOP. Collected samples were placed immediately into an ice chilled cooler-box. Samples were dispatched to NATA-accredited laboratories under chain of custody documentation within holding times.

A review of QA/QC procedure has been completed and is presented in the data validation report (Attachment D). The report concludes that data is suitable for the purposes of the assessment.

4.4 Laboratory Analytical Suite

Laboratory analysis was carried out by Envirolab Pty Ltd a NATA accredited laboratory. Laboratory analytical documentation is presented in Attachment C. A total of 37 primary soil samples and 3 material samples were sent for analysis. Soil laboratory analysis is summarised in Table 9.

Table 9: Summary of primary soil laboratory analyses.

COC	Number of Primary Samples Analysed
BTEX	17
TRH	17
PAH	17
PCB	10
Heavy metals ¹	37
OCP/OPP	37
Asbestos in material	3

Notes:

¹ Heavy metals – arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc.

5 Site Assessment Criteria

5.1 Overview

The site assessment criteria (SAC) adopted for this DSI have been derived from the following source:

- ASC NEPM (1999, amended 2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM).

Guideline values for individual contaminants analysed for this assessment are presented in laboratory tables in Attachment B.

Table 10 summarises the applicability of the SAC adopted for this investigation.

Table 10: Summary of SAC.

Media	Adopted Guidelines	Applicability
Soil	ASC NEPM (1999, amended 2013) Soil HILs, EILs, HSLs, ESLs and TPH Management Limits	<u>Health Investigation Levels (HILs)</u> HIL B – residential land use with minimal opportunities for soil access. <u>Ecological Investigation and Screening Levels (EIL and ESL)</u> EILs and ESLs for the site are considered to be unnecessary as the proposed development plan does not include areas of ecological significance. <u>Health Screening Levels (HSL)</u> HSLs A and B – residential land use for sand (ASC NEPM 1999, amended 2013) have been adopted based on site lithology and as a conservative measure. <u>Management Limits</u> TPH management levels for coarse grained material have been selected based on site lithology and as a conservative measure. <u>Asbestos</u> Due to the preliminary nature of this assessment, the presence / absence of all forms of asbestos has been adopted as SAC.

6 Results

6.1 Field Observations

6.1.1 Access Restrictions

Field investigations conducted by MA on 24 January 2016 were completed prior to any demolition works undertaken at the site. As a result, access to soils underlying the sheds and dwellings currently on site (AEC A and AEC B) was limited. Surface samples were collected under dwellings and sheds where possible, and adjacent to foundations where access was unavailable. This is not considered a significant limitation as the AECs associated with these areas include a 1 m curtilage around the building footprints and testing was undertaken adjacent to footings which is the most likely place for any residual pesticide impact.

6.1.2 Natural Lithology

A summary of typical natural lithology observations is presented in Table 11. Natural lithology is based on borehole logs from this investigation and previous geotechnical investigations detailed in MA report P1505008JR02V01 (2015b). Detailed borehole logs for this investigation are presented in Attachment E.

Table 11: Summary of natural soils.

Lithology ¹	Depth Range (mBGL) ²	
	17 Goulburn Street	19 Goulburn Street
Concrete hardstand	0.0 – 0.1	0.0 – 0.1
Silty SAND (fill) – coarse grained, dark brown, shale gravels present.	0.1 – 0.2	0.1 – 0.4
CLAY (natural) – medium plasticity, brown/grey/red	0.2 – 1.7 ³	0.4 – 1.7 ³
SANDSTONE (weathered rock) – Fine grained, red/grey, distinctly weathered	1.7 – 3.8 ³	1.7 – 3.8 ³

Notes:

¹ See borehole / test pit logs for detailed material description.

² Indicative depth range. Material depth may vary across the site depending on site and local geological conditions.

³ Indicative depth based on previous geotechnical investigations (MA, 2015b).

6.1.3 Asbestos in Material

Dilapidated weatherboard clad residential sheds present on 19 and 21 Goulburn Street, and a weatherboard clad dwelling on 19 Goulburn Street were identified during the PSI investigation as being potential asbestos containing material (PACM).

Two material fragments were collected during DSI investigations from the weatherboard sheds present on 17 and 19 Goulburn Street respectively. Samples were collected from the ground adjacent to the sheds. These material samples were sent to Envirolab for analysis for asbestos in material.

The results from laboratory testing found positive identification of asbestos fibres in both material samples tested.

6.2 Laboratory Analytical Results

6.2.1 Analytical Results Compared to SAC

The following sections summarise the results of soil laboratory analysis for samples taken. Detailed tabulated results showing individual sample concentrations compared to adopted SAC values are available in Attachment B. Laboratory analytical documentation is available in Attachment C.

Table 12: Summary of soil laboratory results for 17 – 23 Goulburn Street, Liverpool, NSW.

Analyte	Results Compared to SAC			
	17 Goulburn St	19 Goulburn St	21 Goulburn St	23 Goulburn St
Heavy Metals ¹	<u>HILs</u> All results below SAC.	<u>HILs</u> Lead exceeded adopted HIL (1200 mg/kg) at 5008/SS15 (1200 mg/kg)	<u>HILs</u> Lead exceeded adopted HIL (1200 mg/kg) at 5008/SS22 (1200 mg/kg)	<u>HILs</u> All results below SAC.
OCP/OPP	<u>HILs</u> All results below SAC.	<u>HILs</u> All results below SAC.	<u>HILs</u> All results below SAC.	<u>HILs</u> All results below SAC.
BTEX/TRH	<u>HSLs</u> All results below SAC. <u>Management limits</u> All results below SAC.	<u>HSLs</u> All results below SAC. <u>Management limits</u> All results below SAC.	<u>HSLs</u> F2 TRH ² exceeded adopted HSL for 1-2 m (240 mg/kg) at 5008/SS02 (330 mg/kg) <u>Management limits</u> All results below SAC.	<u>HSLs</u> All results below SAC. <u>Management limits</u> All results below SAC.
PAH	<u>HILs</u> All results below SAC.	<u>HILs</u> All results below SAC.	<u>HILs</u> All results below SAC.	<u>HILs</u> All results below SAC.

Notes:

¹ Heavy metals – arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc.

² F2 includes TRH >C10-C16 fraction less naphthalene.

6.2.2 Upper Confidence Limit Assessment

As described in the DQO (Section 5.1), a 95% upper confidence limit (UCL) can be applied to, and decisions made based on the probability that 95% of site soils will meet the SAC.

UCL calculations for lead concentrations from surface samples at the site provide a 95% UCL level of **450.5 mg/kg**. This is below the SAC of 1200 mg/kg.

UCL calculations for F2 TRH concentrations from surface samples at the site provide a 95% UCL level of **200 mg/kg**. This exceeds the HSL for 0 -1 m of soil (110 mg/kg).

6.2.3 Preliminary Waste Classification

Laboratory analytical results were compared against NSW EPA Waste Classification Guidelines (2014) to determine waste classification status for site soils.

Laboratory results found 18 soil samples with heavy metal concentrations exceeding CT1 thresholds in EPA (2004) waste classification guidelines, and 11 soil samples with heavy metal concentrations above CT2 thresholds in EPA (2004) waste classification guidelines.

Subsequently, additional toxicity characteristic leaching procedure (TCLP) testing on these samples was undertaken to confirm waste classification status of contaminated soils.

Laboratory TCLP results found lead and nickel concentrations below SCC1 and TCLP1 for all samples tested. As a result, topsoil and fill material is classified as '**general solid waste (non putrescible)**' for the purposes of offsite disposal.

Further assessment should be completed during the remediation stage confirm waste classification of lower subsoils and weathered rock on the site.

7 Discussion

7.1 Overview

All results for OC and OP pesticides, along with PAH in soil samples were less than the adopted SAC.

Health investigation levels for lead were exceeded at two surface sampling locations, on 19 and 21 Goulburn Street respectively, in sample **5008/SS15 (1200 mg/kg)** and **5008/SS22 (1200 mg/kg)**.

Health safety levels for F2 TRH were exceeded at one surface sampling location in sample **5008/SS02 (330 mg/kg)**.

Upper confidence limit calculations for the site indicate a 95% UCL for lead concentrations below the SAC.

It is also noted that laboratory results indicated elevated levels of zinc and TRH above normal background levels at a number of sampling locations across the site.

7.2 Source and Extent of Soil Contamination above SAC

Soil samples exceeding lead HILs were collected from soils adjacent to the foundations of the current dwellings on 19 and 21 Goulburn Street.

The soil sample exceeding F2 TRH was collected from soils adjacent to the shed on 21 Goulburn Street.

Considering the mode of site soil contamination in these areas is likely from surface spills, contamination is not expected to increase in depth. That said, further at-depth sampling in these locations is recommended following demolition and stripping of topsoils to delineate the extent of soil contamination in these areas. This should be completed during the remediation stage.

Alternatively, remediation may be undertaken and validation sampling used to determine contamination extent.

7.3 Ecological Investigation and Screening Levels (EILs and ESLs)

Ecological investigation and screening levels for the site are not considered as a result of the proposed development plan. It is expected that the majority of near surface soils are to be removed as part of the development plan.

Where onsite soils are to remain onsite following excavation and development, soils are to be validated against EILs and ESLs where necessary during the development stage.

8 Conclusions and Recommendations

There were three SAC exceedances posing a risk to human receptors identified as part of this DSI, with two exceedances of lead concentration levels and one exceedance of F2 TRH concentration levels.

It is recommended that a remedial action plan (RAP) be prepared for the site to address these exceedances, further delineate the extent of contamination, and provide a clear plan for remediation of the site prior to its proposed land use.

It is expected the site will be fit for its proposed residential land use subject to a site RAP being carried out.

9 Limitations

This DSI was undertaken in accordance with current industry standards.

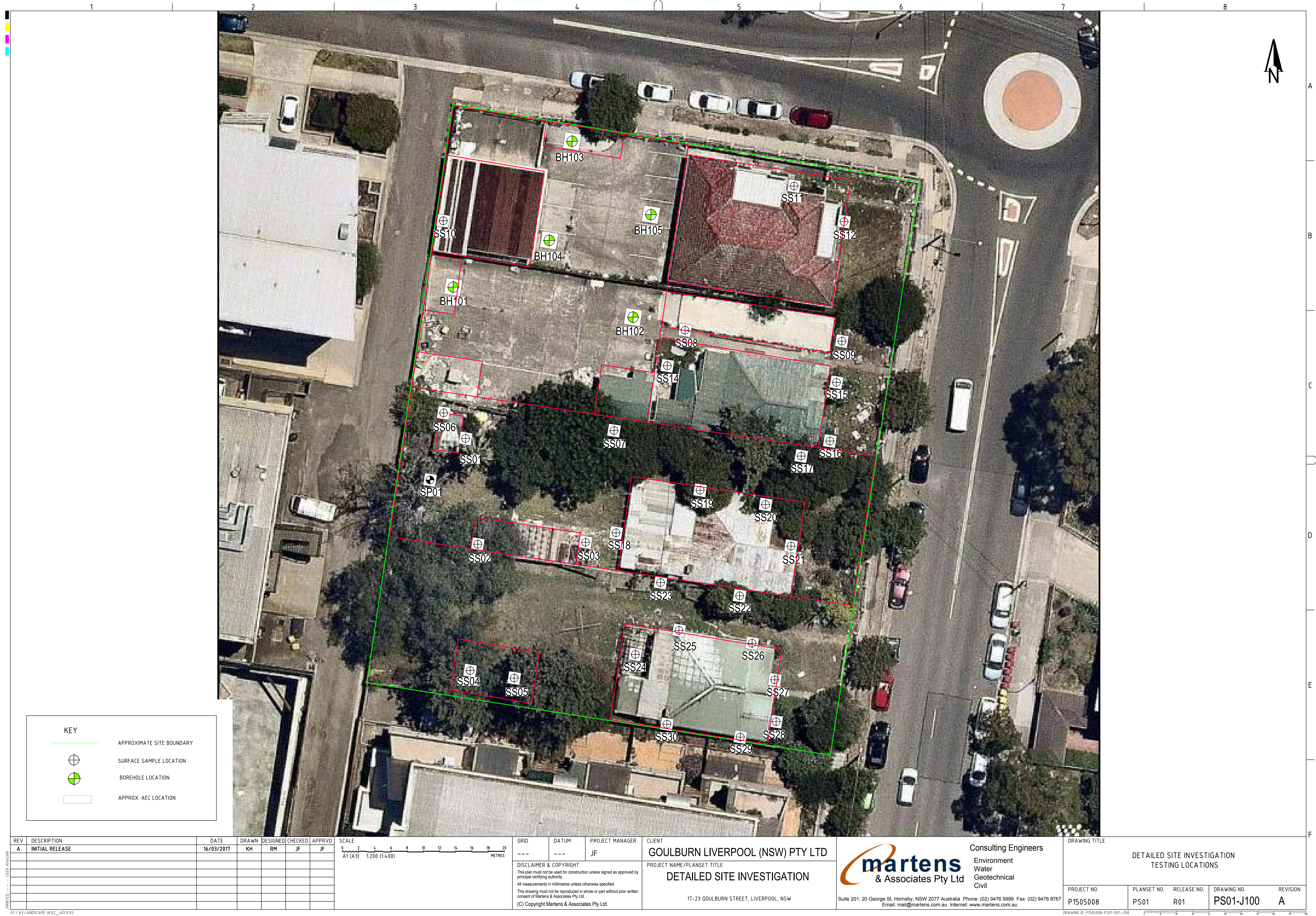
It is important to note that no land contamination study can be considered to be a complete and exhaustive characterisation of a site nor can it be guaranteed that any assessment shall identify and characterise all areas of potential contamination or all past potentially contaminating land-uses. This is particularly the case where onsite filling has occurred where full site access is not possible due to the presence of structures. Therefore, this report should not be read as a guarantee that only contamination identified shall be found on the site. Should material be exposed in future which appears to be contaminated, additional testing may be required to determine the implications for the site.

Martens & Associates Pty Ltd has undertaken this assessment for the purposes of assessing potential site contamination. No reliance on this report should be made for any other investigation or proposal. Martens & Associates accepts no responsibility, and provides no guarantee regarding the characteristics of areas of the site not specifically studied in this investigation.

10 References

- NSW Department of Mineral Resources (1985) *Penrith 1:100,000 Geological Sheet 9030*.
- Martens and Associates (2015a) *Preliminary Site Investigation: 17 – 23 Goulburn Street, Liverpool, NSW. (ref: P1505008JR01V01)*
- Martens and Associates (2015b) *Preliminary Geotechnical Investigation: 17 – 23 Goulburn Street, Liverpool, NSW. (ref: P1505008JR02V01)*
- NEPC (1999, amended 2013) *National Environmental Protection (Assessment of Site Contamination) Measure – Referred to as ASC NEPM (1999, amended 2013)*.
- NSW DEC (2006) *2nd Ed. Contaminated Sites: Guidelines for the NSW Site Auditor Scheme*.
- NSW EPA (1995) *Sampling Design Guidelines*.
- NSW EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste*
- NSW OEH (2011) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*.

11 Attachment A – Site Plan



KEY

APPROXIMATE SITE BOUNDARY

SURFACE SAMPLE LOCATION

BOREHOLE LOCATION

APPROX. AEC LOCATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	16/03/2017	KH	RM	JF	JF

SCALE
0 2 4 6 8 10 12 14 16 18 20
A1 (A3) 1:200 (1:400) METRES

GRID	DATUM	PROJECT MANAGER	CLIENT
---	---	JF	GOULBURN LIVERPOOL (NSW) PTY LTD
DISCLAIMER & COPYRIGHT			
This plan must not be used for construction unless signed as approved by principal certifying authority.			
All measurements in millimetres unless otherwise specified.			
This drawing must not be reproduced in whole or part without prior written consent of Martens & Associates Pty Ltd.			
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PROJECT NAME/PLANSET TITLE
DETAILED SITE INVESTIGATION
17-23 GOULBURN STREET, LIVERPOOL, NSW

Consulting Engineers

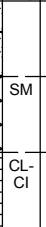
Environment
Water
Geotechnical
Civil

Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE			
DETAILED SITE INVESTIGATION TESTING LOCATIONS			
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.
P1505008	PS01	R01	PS01-J100
			REVISION
			A

12 **Attachment E – Detailed Borehole and Test Pit Logs**

CLIENT	Gus Fares Architects Pty Ltd C/- Kanebridge	COMMENCED	24/01/2017	COMPLETED	24/01/2017	REF BH101 Sheet 1 OF 1 PROJECT NO. P1505008	
PROJECT	Geotechnical & Contamination Assessment	LOGGED	RM	CHECKED	JF		
SITE	17-23 Goulburn St, Liverpool, NSW	GEOLOGY	Shale	VEGETATION	None		
EQUIPMENT	4WD truck-mounted hydraulic drill rig	EASTING		RL SURFACE	m	DATUM	Existing Ground Level
EXCAVATION DIMENSIONS	ø100 mm x 0.30 m depth	NORTHING		ASPECT		SLOPE	

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT		Not Encountered		0.10	5008/101/0.20/S/1 D 0.20 m			SM	CONCRETE slab.	D	M		PAVEMENT
			0.2	0.20					FILL: Silty SAND, dark brown, shale gravels.	FILL			
ADV			0.30	5008/101/0.30/S/1 D 0.30 m					CL- CI	CLAY, medium plasticity, red/orange.			RESIDUAL SOIL
					5008/101/0.30/S/1 D 0.30 m				Hole Terminated at 0.30 m (Investigation Limit)				
			0.4										
			0.6										
			0.8										
			1.0										
			1.2										
			1.4										
			1.6										
			1.8										

EXCAVATION LOG TO BE READ IN CONJUNCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS



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**Engineering Log -
BOREHOLE**

CLIENT	Gus Fares Architects Pty Ltd C/- Kanebridge	COMMENCED	24/01/2017	COMPLETED	24/01/2017	REF BH102 Sheet 1 OF 1 PROJECT NO. P1505008	
PROJECT	Geotechnical & Contamination Assessment	LOGGED	RM	CHECKED	JF		
SITE	17-23 Goulburn St, Liverpool, NSW	GEOLOGY	Shale	VEGETATION	None		
EQUIPMENT	4WD truck-mounted hydraulic drill rig	EASTING		RL SURFACE	m	DATUM	Existing Ground Level
EXCAVATION DIMENSIONS	ø100 mm x 0.45 m depth	NORTHING		ASPECT		SLOPE	

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	AD/V	Not Encountered		0.10	5008/102/0.20/S/1 D 0.20 m 5008/102/0.30/S/1 D 0.30 m		SM CL-CI	CONCRETE slab.	D	M		PAVEMENT
				FILL: Silty SAND, dark brown, shale gravels.					FILL			
			0.2					CLAY, medium plasticity, red/orange.				RESIDUAL SOIL
			0.4									
				0.45				Hole Terminated at 0.45 m (Investigation Limit)				
				0.6								
				0.8								
				1.0								
				1.2								
				1.4								
				1.6								
				1.8								

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**Engineering Log -
BOREHOLE**

CLIENT	Gus Fares Architects Pty Ltd C/- Kanebridge	COMMENCED	24/01/2017	COMPLETED	24/01/2017	REF BH103 Sheet 1 OF 1 PROJECT NO. P1505008	
PROJECT	Geotechnical & Contamination Assessment	LOGGED	RM	CHECKED	JF		
SITE	17-23 Goulburn St, Liverpool, NSW	GEOLOGY	Shale	VEGETATION	None		
EQUIPMENT	4WD truck-mounted hydraulic drill rig	EASTING		RL SURFACE	m	DATUM	Existing Ground Level
EXCAVATION DIMENSIONS	ø100 mm x 0.40 m depth	NORTHING		ASPECT		SLOPE	

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	Not Encountered		0.10	5008/103/0.20/S/1 D 0.20 m			SM	CONCRETE slab.	D		PAVEMENT	
ADV			0.2					FILL: Silty SAND, dark brown, shale gravels.	M		FILL	
			0.4					Hole Terminated at 0.40 m (Investigation Limit)				
			0.6									
			0.8									
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									

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**Engineering Log -
BOREHOLE**

CLIENT	Gus Fares Architects Pty Ltd C/- Kanebridge	COMMENCED	24/01/2017	COMPLETED	24/01/2017	REF BH104 Sheet 1 OF 1 PROJECT NO. P1505008	
PROJECT	Geotechnical & Contamination Assessment	LOGGED	RM	CHECKED	JF		
SITE	17-23 Goulburn St, Liverpool, NSW	GEOLOGY	Shale	VEGETATION	None		
EQUIPMENT	4WD truck-mounted hydraulic drill rig	EASTING		RL SURFACE	m	DATUM	Existing Ground Level
EXCAVATION DIMENSIONS	ø100 mm x 0.70 m depth	NORTHING		ASPECT		SLOPE	

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT				0.10	5008/104/0.20/S/1 D 0.20 m				CONCRETE slab.	D			PAVEMENT
		Not Encountered	0.2					SM	FILL: Silty SAND, dark brown, shale gravels.				FILL
ADV			0.4	0.40				CL-CI	CLAY, medium plasticity, red/orange with grey mottles.	M			RESIDUAL SOIL
			0.6										
			0.70		5008/104/0.50/S/1 D 0.50 m								
			0.8						Hole Terminated at 0.70 m (Investigation Limit)				
			1.0										
			1.2										
			1.4										
			1.6										
			1.8										

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**Engineering Log -
BOREHOLE**

CLIENT	Gus Fares Architects Pty Ltd C/- Kanebridge	COMMENCED	24/01/2017	COMPLETED	24/01/2017	REF BH105 Sheet 1 OF 1 PROJECT NO. P1505008	
PROJECT	Geotechnical & Contamination Assessment	LOGGED	RM	CHECKED	JF		
SITE	17-23 Goulburn St, Liverpool, NSW	GEOLOGY	Shale	VEGETATION	None		
EQUIPMENT	4WD truck-mounted hydraulic drill rig	EASTING		RL SURFACE	m	DATUM	Existing Ground Level
EXCAVATION DIMENSIONS	ø100 mm x 0.60 m depth	NORTHING		ASPECT		SLOPE	

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT		Not Encountered		0.10	5008/105/0.15/S/1 D 0.15 m			SM	CONCRETE slab.	D		PAVEMENT
AD/V			0.2				FILL: Silty SAND, dark brown, shale gravels.		M	FILL		
			0.4	0.40								5008/105/0.40/S/1 D 0.40 m
			0.6	0.60	Hole Terminated at 0.60 m (Investigation Limit)							
			0.8									
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									

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**Engineering Log -
BOREHOLE**

13 **Attachment B – Laboratory Result Summary Tables**

	BTEX																PAH/Phenols																TPH															
	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	GC-C10 less BTEX (F1)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benz(a)pyrene	Benz(b)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Cardiogenic PAHs (as B[a]P) TP	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	C10-C16	C16-C24	C24-C40	F2-NAPHTHALENE	GC - C9	C10 - C14	C15 - C28	C29-C36	C10 - C40 (Sum of total)	GC-C10																
EQI	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg															
NEPM 2013 Table 1A(1) Hills Res B Soil	0.2	1	0.5	2	1	1	25	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.1	4	0.1	0.1	0.1	0.1	0.1	0.1	50	100	100	50	25	50	100	100	50	25																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																																																
0-1m	0.5	55	160			40	45														3						110																					
1-2m	0.5	NL	220			60	70																				240																					
2-4m	0.5	NL	310			95	110														NL						440																					
>4m	0.5	NL	540			170	200														NL						NL																					
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil																							1000	3500	10000							800																
Field ID																																																
5008/BH101/0.2	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	0.06	<0.1	<0.1	<0.1	0.121	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<50	<100	<100	<50	<25	<50	<100	<100	<50	<25																
5008/BH101/0.3	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50	110	<100	<50	<25																
5008/BH102/0.2	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<50	<25																
5008/BH103/0.2	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<50	<25																
5008/BH104/0.2	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<50	<25																
5008/BH105/0.15	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<50	<25																
5008/SP01	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	0.06	<0.1	<0.1	<0.1	0.121	0.2	<0.1	<0.1	<0.1	0.1	0.2	<50	230	130	<50	<25	<50	<100	240	360	<25																
5008/SS01	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	0.2	0.2	0.1	0.2	0.1	0.283	0.3	<0.1	0.1	<0.1	0.1	0.4	<50	200	120	<50	<25	<50	<100	220	320	<25																
5008/SS02	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	330	2500	1300	330	<25	210	1100	2100	4100	<25																
5008/SS03	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	140	<100	<50	<25	<50	<100	150	140	<25																
5008/SS04	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	150	<100	<50	<25	<50	<100	180	150	<25																
5008/SS05	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	220	130	<50	<25	<50	<100	240	350	<25																
5008/SS06	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<50	220	180	<50	<25	<50	<100	270	400	<25																
5008/SS07	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<50	230	150	<50	<25	<50	<100	230	380	<25																
5008/SS08	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.172	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<50	<25																
5008/SS09	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	0.1	0.09	<0.1	0.1	<0.1	0.1565	0.2	<0.1	<0.1	<0.1	<0.1	0.3	<50	<100	<100	<50	<25	<50	<100	<100	<50	<25																
5008/SS10	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	0.2	0.2	<0.1	0.2	<0.1	0.2775	0.7	<0.1	<0.1	<0.1	0.4	0.6	<50	<100	<100	<50	<25	<50	<100	<100	<50	<25																
Statistical Summary																																																
Number of Results	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17																
Number of Detects	0	0	0	0	0	0	0	0	0	0	3	5	1	3	0	5	6	0	1	0	3	7	1	8	6	1	0	1	2	8	8	0																
Minimum Concentration	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	0.121	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<50	<25																
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	0.06	0.1	0.1	ND	0.121	0.1	ND	0.1	ND	0.1	0.1	330	140	120	330	ND	210	110	150	140	ND															
Maximum Concentration	<0.2	<1	<0.5	<2	<1	<1	<25	<0.1	<0.1	<0.1	0.2	0.2	0.1	0.2	0.1	0.283	0.7	ND	0.1	ND	0.1	0.4	0.6	330	2500	1300	330	<25	210	1100	2100	4100	<25															
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2	0.2	0.1	0.2	ND	0.283	0.7	ND	0.1	ND	0.4	0.6	330	2500	1300	330	ND	210	1100	2100	4100	ND															
Average Concentration	0.1	0.5	0.25	1	0.5	0.5	13	0.05	0.05	0.05	0.071	0.054	0.053	0.071	0.05	0.12	0.13	0.05	0.053	0.05	0.076	0.14	43	225	151	43	13	36	115	240	378	13																
Median Concentration	0.1	0.5	0.25	1	0.5	0.5	12.5	0.05	0.05	0.05	0.05	0.025	0.05	0.05	0.05	0.086	0.05	0.05	0.05	0.05	0.05	0.05	25	50	50	25	12.5	25	50	50	25	12.5																
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0.05	0.058	0.012	0.05	0	0.064	0.16	0	0.012	0	0.085	0.16	74	584	299	74	0	45	254	487	971	0															
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0																
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0																

[illegible][illegible]

	Lead	Metals						
	Lead	Arsenic	Cadmium	Chromium (III+VI)	Copper	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	4	0.4	1	1	0.1	1	1
NSW 2008 General Solid Waste (No Leaching)	100	100	20			4	40	
NSW 2008 Restricted Solid Waste (No Leaching)	400	400	80			16	160	

Field_ID								
5008/BH101/0.2	900	9	0.6	12	140	<0.1	8	450
5008/BH101/0.3	30	5	<0.4	14	24	<0.1	3	71
5008/BH102/0.2	160	6	<0.4	16	39	<0.1	11	160
5008/BH103/0.2	37	8	<0.4	14	26	0.2	7	71
5008/BH104/0.2	92	5	1	14	24	0.2	8	180
5008/BH105/0.15	32	8	<0.4	15	25	<0.1	7	62
5008/SP01	290	9	1	20	110	0.1	9	730
5008/SS01	240	9	1	25	64	0.1	14	610
5008/SS02	160	20	2	14	61	<0.1	11	2400
5008/SS03	82	6	<0.4	14	29	0.4	11	160
5008/SS04	110	15	0.8	14	33	<0.1	13	500
5008/SS05	620	19	3	34	75	<0.1	31	2100
5008/SS06	160	18	5.2	21	130	<0.1	28	4400
5008/SS07	110	6	<0.4	15	34	<0.1	7	240
5008/SS08	30	<4	<0.4	5	21	<0.1	2	80
5008/SS09	110	6	<0.4	15	21	<0.1	6	110
5008/SS10	79	<4	0.7	13	40	<0.1	51	260
5008/SS11	87	7	<0.4	19	32	<0.1	9	150
5008/SS12	49	7	<0.4	16	21	<0.1	6	92
5008/SS13	110	4	0.6	15	28	0.1	6	110
5008/SS14	300	<4	0.9	13	46	<0.1	9	350
5008/SS15	1200	7	1	22	44	0.1	7	870
5008/SS16	470	<4	0.6	13	29	<0.1	5	380
5008/SS17	210	<4	<0.4	9	16	<0.1	4	170
5008/SS18	300	12	4	27	140	0.2	13	1200
5008/SS19	280	17	1	17	56	<0.1	14	450
5008/SS20	530	12	0.8	16	31	<0.1	13	790
5008/SS21	600	5	0.7	29	38	0.1	10	860
5008/SS22	1200	8	0.7	28	51	<0.1	9	1800
5008/SS23	400	8	2	24	130	0.1	23	750
5008/SS24	250	56	2	33	42	0.1	23	710
5008/SS25	320	55	0.8	19	32	<0.1	10	470
5008/SS26	260	28	0.7	14	27	<0.1	8	820
5008/SS27	640	18	1	19	60	0.1	12	1100
5008/SS28	600	28	1	20	92	<0.1	14	690
5008/SS29	450	17	0.8	24	44	<0.1	17	670
5008/SS30	120	10	<0.4	16	35	<0.1	12	280

Statistical Summary								
Number of Results	37	37	37	37	37	37	37	37
Number of Detects	37	32	25	37	37	12	37	37
Minimum Concentration	30	<4	<0.4	5	16	<0.1	2	62
Minimum Detect	30	4	0.6	5	16	0.1	2	62
Maximum Concentration	1200	56	5.2	34	140	0.4	51	4400
Maximum Detect	1200	56	5.2	34	140	0.4	51	4400
Average Concentration	314	12	0.98	18	51	0.082	12	684
Median Concentration	240	8	0.7	16	38	0.05	10	450
Standard Deviation	301	12	1.1	6.4	36	0.069	9.2	839
Number of Guideline Exceedances	28	0	0	0	0	0	1	0
Number of Guideline Exceedances(Detects Only)	28	0	0	0	0	0	1	0

	Lead	Metals
	Lead	Nickel
	mg/L	mg/L
EQL	0.03	0.02
NSW 2008 General Solid Waste (leached)	5	2
NSW 2008 Restricted Solid Waste (leached)	20	8

Field_ID

5008/BH101/0.2	0.51	-
5008/BH102/0.2	0.07	-
5008/SP01	0.1	-
5008/SS01	0.04	-
5008/SS02	<0.03	-
5008/SS04	<0.03	-
5008/SS05	0.09	-
5008/SS06	<0.03	-
5008/SS07	<0.03	-
5008/SS09	<0.03	-
5008/SS10	-	0.04
5008/SS13	<0.03	-
5008/SS14	0.06	-
5008/SS15	0.52	-
5008/SS16	0.2	-
5008/SS17	0.1	-
5008/SS18	0.05	-
5008/SS19	0.06	-
5008/SS20	0.53	-
5008/SS21	0.38	-
5008/SS22	0.77	-
5008/SS23	0.2	-
5008/SS24	0.08	-
5008/SS25	0.09	-
5008/SS26	0.07	-
5008/SS27	0.1	-
5008/SS28	0.3	-
5008/SS29	0.2	-
5008/SS30	0.1	-

Statistical Summary

Number of Results	28	1
Number of Detects	22	1
Minimum Concentration	<0.03	0.04
Minimum Detect	0.04	0.04
Maximum Concentration	0.77	0.04
Maximum Detect	0.77	0.04
Average Concentration	0.17	
Median Concentration	0.09	0.04
Standard Deviation	0.2	
Number of Guideline Exceedances	0	0
Number of Guideline Exceedances(Detects Only)	0	0

14 **Attachment D – Data Validation Report**

DATA VALIDATION REPORT: 17 – 23 Goulburn Street, Liverpool, NSW

1. Sample Handling

- a. Were sample holding times met?
- b. Were samples in proper custody between the field and reaching the laboratory?
- c. Were the samples properly and adequately preserved?
- d. Were the samples received by the laboratory in good condition?

Yes	No
	(Comments below)
✓	
✓	
✓	
✓	

COMMENTS

Sample handling is:

- ✓ **Satisfactory**
- Partially Satisfactory**
- Unsatisfactory**

DATA VALIDATION REPORT: 17 – 23 Goulburn Street, Liverpool, NSW

2. Precision / Accuracy Statement

- a. Was a NATA registered laboratory used?
- b. Did the laboratory perform the requested tests?
- c. Were laboratory methods adopted NATA endorsed?
- d. Were appropriate test procedures followed?
- e. Were reporting limits satisfactory?
- f. Was the NATA Seal on the reports?
- g. Were reports signed by an authorised person?

Yes	No (Comments below)
✓	
✓	
✓	
✓	
✓	
✓	
✓	

COMMENTS

Precision / Accuracy of the Laboratory Report:

✓

Satisfactory

Partially Satisfactory

Unsatisfactory

DATA VALIDATION REPORT: 17 – 23 Goulburn Street, Liverpool, NSW
3. Field Quality Assurance / Quality Control (QA/QC)

a. Number of Primary Samples analysed
(does not include duplicates)

b. Number of days of sampling

c. Number and Type of QA/QC Samples analysed

Intra-Laboratory Field Duplicates

Inter-Laboratory Field triplicates

Trip Blanks

Field Rinsate

Other (Field Blanks, Spikes, etc.)

Comments

Media	Number
Soil:	37
Water:	-
Material	2
	1
Soil	Water
3	
-	
1	
-	
-	

DATA VALIDATION REPORT: 17 – 23 Goulburn Street, Liverpool, NSW

Field Duplicates

Adequate Numbers of intra-laboratory field duplicates analysed?

Adequate Numbers of inter-laboratory field duplicates analysed?

Were field duplicate RPDs within Control Limits?

- i. Organics ($\pm 30\%$)
- ii. Metals / Inorganics ($\pm 30\%$)
- iii. Nutrients ($\pm 50\%$)

Yes	No (Comments below)
✓	
-	-
	N/A
	✓
	N/A

COMMENTS

RPD exceeds control limits in two duplicates by a marginal amount (31%, 32% and 37%, being above sample RPD of 30%). All RPD discrepancies are below SAC and will have no effect on contamination findings.

DATA VALIDATION REPORT: 17 – 23 Goulburn Street, Liverpool, NSW
Summary of Quality Assurance / Quality Control (QA/QC)

QA/QC Type	Satisfactory	Partially Satisfactory	Unsatisfactory
Sample handling	✓		
Precision / Accuracy of the Laboratory Report	✓		
Field QA / QC	✓		
Laboratory Internal QA / QC	✓		

Data Usability

1. Data directly usable ✓
2. Data usable with the following corrections/modifications
(see comment below)
3. Data not usable.

COMMENTS

Field Duplicates (SOIL)
Filter: Lab_Report_Nui

Lab Report Number	160829	160829		160829	160829		160829	160829	
Field ID	5008/SS09	5008/DUP01	RPD	5008/SS19	5008/DUP02	RPD	5008/SS24	5008/DUP03	RPD
Sampled Date/Time	24/01/2017	24/01/2017		24/01/2017	24/01/2017		24/01/2017	24/01/2017	

Chem_Gr	ChemNam	Units	EQL									
Inorganics	Moisture	%	0.1	5.7	5.9	3	10.0	10.0	0	16.0	16.0	0
Lead	Lead	mg/kg	1	110.0	150.0	31	280.0	220.0	24	250.0	280.0	11
Metals	Arsenic	mg/kg	4	6.0	5.0	18	17.0	13.0	27	56.0	60.0	7
	Cadmium	mg/kg	0.4	<0.4	<0.4	0	1.0	1.0	0	2.0	1.0	67
	Chromium	mg/kg	1	15.0	12.0	22	17.0	24.0	34	33.0	24.0	32
	Copper	mg/kg	1	21.0	35.0	50	56.0	63.0	12	42.0	47.0	11
	Mercury	mg/kg	0.1	<0.1	0.2	67	<0.1	<0.1	0	0.1	0.2	67
	Nickel	mg/kg	1	6.0	6.0	0	14.0	16.0	13	23.0	15.0	42
	Zinc	mg/kg	1	110.0	160.0	37	450.0	410.0	9	710.0	650.0	9

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 80 (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the p

15 **Attachment C – Laboratory Certificates**



12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS

160829

Client:

Martens & Associates Pty Ltd
Suite 201, 20 George St
Hornsby
NSW 2077

Attention: Robert Hehaffey

Sample log in details:

Your Reference:	P1505008COC01V01
No. of samples:	2 materials 45 soils
Date samples received / completed instructions received	25/01/17 / 25/01/17

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	2/02/17 / 1/02/17
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing

Tests not covered by NATA are denoted with *.

Results Approved By:

David Springer
General Manager



Envirolab Reference: 160829
Revision No: R 00

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference	UNITS ----- -	160829-1 5008/BH101/	160829-2 5008/BH101/	160829-3 5008/BH102/	160829-5 5008/BH103/	160829-6 5008/BH104/
Depth	-----	0.2	0.3	0.2	0.2	0.2
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
TRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	96	100	100	100	94

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference	UNITS ----- -	160829-8 5008/BH105/	160829-10 5008/SP01	160829-11 5008/SS01	160829-12 5008/SS02	160829-13 5008/SS03
Depth	-----	0.15	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
TRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	100	112	104	99	108

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference	UNITS ----- -	160829-14 5008/SS04	160829-15 5008/SS05	160829-16 5008/SS06	160829-17 5008/SS07	160829-18 5008/SS08
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	31/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	31/01/2017	30/01/2017	30/01/2017	30/01/2017
TRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	109	93	102	107	112

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference	UNITS ----- -	160829-19 5008/SS09	160829-20 5008/SS10	160829-46 Trip Blank	160829-47 Trip Spike
Depth	-----	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017
TRHC ₆ - C ₉	mg/kg	<25	<25	<25	[NA]
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25	[NA]
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	96%
Toluene	mg/kg	<0.5	<0.5	<0.5	94%
Ethylbenzene	mg/kg	<1	<1	<1	95%
m+p-xylene	mg/kg	<2	<2	<2	95%
o-Xylene	mg/kg	<1	<1	<1	95%
Total +ve Xylenes	mg/kg	<1	<1	<1	[NA]
naphthalene	mg/kg	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	109	105	119	105

svTRH (C10-C40) in Soil Our Reference: Your Reference	UNITS ----- -	160829-1 5008/BH101/	160829-2 5008/BH101/	160829-3 5008/BH102/	160829-5 5008/BH103/	160829-6 5008/BH104/
Depth	-----	0.2	0.3	0.2	0.2	0.2
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	28/01/2017	28/01/2017	28/01/2017	28/01/2017	28/01/2017
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	110	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	82	75	83	74

svTRH (C10-C40) in Soil Our Reference: Your Reference	UNITS ----- -	160829-8 5008/BH105/	160829-10 5008/SP01	160829-11 5008/SS01	160829-12 5008/SS02	160829-13 5008/SS03
Depth	-----	0.15	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	28/01/2017	28/01/2017	28/01/2017	28/01/2017	28/01/2017
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	210	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	1,100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	240	220	2,100	150
TRH>C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	330	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	330	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100	230	200	2,500	140
TRH>C ₃₄ -C ₄₀	mg/kg	<100	130	120	1,300	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	360	320	4,100	140
Surrogate o-Terphenyl	%	74	82	76	#	93

svTRH (C10-C40) in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- - -----	160829-14 5008/SS04 - 24/01/2017 soil	160829-15 5008/SS05 - 24/01/2017 soil	160829-16 5008/SS06 - 24/01/2017 soil	160829-17 5008/SS07 - 24/01/2017 soil	160829-18 5008/SS08 - 24/01/2017 soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	28/01/2017	28/01/2017	28/01/2017	28/01/2017	28/01/2017
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	180	240	270	230	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₆ -C ₃₄	mg/kg	150	220	220	230	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100	130	180	150	<100
Total +ve TRH (>C ₁₀ -C ₄₀)	mg/kg	150	350	400	380	<50
Surrogate o-Terphenyl	%	76	75	75	75	77

svTRH (C10-C40) in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- - -----	160829-19 5008/SS09 - 24/01/2017 soil	160829-20 5008/SS10 - 24/01/2017 soil
Date extracted	-	27/01/2017	27/01/2017
Date analysed	-	28/01/2017	28/01/2017
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100	<100
Total +ve TRH (>C ₁₀ -C ₄₀)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	74	73

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	160829-1 5008/BH101/	160829-2 5008/BH101/	160829-3 5008/BH102/	160829-5 5008/BH103/	160829-6 5008/BH104/
Depth	-----	0.2	0.3	0.2	0.2	0.2
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.06	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.3	<0.05	<0.05	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	77	78	76	71	77

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	160829-8 5008/BH105/	160829-10 5008/SP01	160829-11 5008/SS01	160829-12 5008/SS02	160829-13 5008/SS03
Depth	-----	0.15	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.2	0.3	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.2	0.4	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.3	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.06	0.2	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	<0.05	0.54	1.8	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	78	78	79	92	85

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	160829-14 5008/SS04	160829-15 5008/SS05	160829-16 5008/SS06	160829-17 5008/SS07	160829-18 5008/SS08
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1	0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	<0.05	<0.05	0.2	0.1	<0.05
Surrogate p-Terphenyl-d14	%	84	83	84	88	87

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	160829-19 5008/SS09	160829-20 5008/SS10
Depth Date Sampled Type of sample	----- ----- -----	- 24/01/2017 soil	- 24/01/2017 soil
Date extracted	-	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.4
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	0.2	0.7
Pyrene	mg/kg	0.3	0.6
Benzo(a)anthracene	mg/kg	0.1	0.2
Chrysene	mg/kg	0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.3
Benzo(a)pyrene	mg/kg	0.09	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Total +ve PAH's	mg/kg	0.81	2.6
Surrogate <i>p</i> -Terphenyl-d14	%	89	88

Organochlorine Pesticides in soil	UNITS	160829-1 5008/BH101/	160829-2 5008/BH101/	160829-3 5008/BH102/	160829-5 5008/BH103/	160829-6 5008/BH104/
Our Reference:	-----					
Your Reference	-					
Depth	-----	0.2	0.3	0.2	0.2	0.2
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	87	89	89	95

Organochlorine Pesticides in soil	UNITS	160829-8	160829-10	160829-11	160829-12	160829-13
Our Reference:	-----	5008/BH105/	5008/SP01	5008/SS01	5008/SS02	5008/SS03
Your Reference	-					
Depth	-----	0.15	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	0.3	<0.1	0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	106	101	91	124	87

Organochlorine Pesticides in soil	UNITS	160829-14	160829-15	160829-16	160829-17	160829-18
Our Reference:	-----	5008/SS04	5008/SS05	5008/SS06	5008/SS07	5008/SS08
Your Reference	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	94	96	92	90

Organochlorine Pesticides in soil	UNITS	160829-19	160829-20	160829-21	160829-22	160829-23
Our Reference:	-----	5008/SS09	5008/SS10	5008/SS11	5008/SS12	5008/SS13
Your Reference	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Surrogate TCMX	%	91	92	84	82	85

Organochlorine Pesticides in soil	UNITS	160829-24	160829-25	160829-26	160829-27	160829-28
Our Reference:	-----	5008/SS14	5008/SS15	5008/SS16	5008/SS17	5008/SS18
Your Reference	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Surrogate TCMX	%	83	85	83	85	85

Organochlorine Pesticides in soil	UNITS	160829-29	160829-30	160829-31	160829-32	160829-33
Our Reference:	-----	5008/SS19	5008/SS20	5008/SS21	5008/SS22	5008/SS23
Your Reference	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	0.2	<0.1	<0.1	1.1
alpha-chlordane	mg/kg	<0.1	0.5	0.1	0.1	1.9
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.2
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Surrogate TCMX	%	84	91	85	96	98

Organochlorine Pesticides in soil	UNITS	160829-34	160829-35	160829-36	160829-37	160829-38
Our Reference:	-----	5008/SS24	5008/SS25	5008/SS26	5008/SS27	5008/SS28
Your Reference	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	0.5	<0.1	<0.1	0.1
gamma-Chlordane	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	83	89	88	93

Organochlorine Pesticides in soil			
Our Reference:	UNITS	160829-39	160829-40
Your Reference	-----	5008/SS29	5008/SS30
	-		
Depth	-----	-	-
Date Sampled		24/01/2017	24/01/2017
Type of sample		soil	soil
Date extracted	-	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017
HCb	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	3.0
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	1.5
gamma-Chlordane	mg/kg	<0.1	4.6
alpha-chlordane	mg/kg	<0.1	0.7
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	94	91

Organophosphorus Pesticides Our Reference: Your Reference	UNITS ----- -	160829-1 5008/BH101/	160829-2 5008/BH101/	160829-3 5008/BH102/	160829-5 5008/BH103/	160829-6 5008/BH104/
Depth	-----	0.2	0.3	0.2	0.2	0.2
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	87	89	89	95

Organophosphorus Pesticides Our Reference: Your Reference	UNITS ----- -	160829-8 5008/BH105/	160829-10 5008/SP01	160829-11 5008/SS01	160829-12 5008/SS02	160829-13 5008/SS03
Depth	-----	0.15	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	106	101	91	124	87

Organophosphorus Pesticides	UNITS	160829-14	160829-15	160829-16	160829-17	160829-18
Our Reference:	-----	5008/SS04	5008/SS05	5008/SS06	5008/SS07	5008/SS08
Your Reference	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	94	96	92	90

Organophosphorus Pesticides	UNITS	160829-19	160829-20	160829-21	160829-22	160829-23
Our Reference:	-----	5008/SS09	5008/SS10	5008/SS11	5008/SS12	5008/SS13
Your Reference	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	84	82	85

Organophosphorus Pesticides	UNITS	160829-24	160829-25	160829-26	160829-27	160829-28
Our Reference:	-----	5008/SS14	5008/SS15	5008/SS16	5008/SS17	5008/SS18
Your Reference	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	83	85	83	85	85

Organophosphorus Pesticides	UNITS	160829-29	160829-30	160829-31	160829-32	160829-33
Our Reference:	-----	5008/SS19	5008/SS20	5008/SS21	5008/SS22	5008/SS23
Your Reference	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	84	91	85	96	98

Organophosphorus Pesticides						
Our Reference:	UNITS	160829-34	160829-35	160829-36	160829-37	160829-38
Your Reference	-----	5008/SS24	5008/SS25	5008/SS26	5008/SS27	5008/SS28
Depth	-	-	-	-	-	-
Date Sampled	-----	24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	0.6	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	83	89	88	93

Organophosphorus Pesticides			
Our Reference:	UNITS	160829-39	160829-40
Your Reference	-----	5008/SS29	5008/SS30
Depth	-	-	-
Date Sampled	-----	24/01/2017	24/01/2017
Type of sample		soil	soil
Date extracted	-	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	1.6
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Surrogate TCMX	%	94	91

PCBs in Soil Our Reference: Your Reference	UNITS ----- -	160829-11 5008/SS01	160829-12 5008/SS02	160829-13 5008/SS03	160829-14 5008/SS04	160829-15 5008/SS05
Depth Date Sampled Type of sample	----- - -	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	91	124	87	95	94

PCBs in Soil Our Reference: Your Reference	UNITS ----- -	160829-16 5008/SS06	160829-17 5008/SS07	160829-18 5008/SS08	160829-19 5008/SS09	160829-20 5008/SS10
Depth Date Sampled Type of sample	----- - -	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil
Date extracted	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	96	92	90	91	92

Acid Extractable metals in soil Our Reference: Your Reference	UNITS ----- -	160829-1 5008/BH101/	160829-2 5008/BH101/	160829-3 5008/BH102/	160829-5 5008/BH103/	160829-6 5008/BH104/
Depth	-----	0.2	0.3	0.2	0.2	0.2
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	31/01/2017	31/01/2017	31/01/2017	31/01/2017	31/01/2017
Arsenic	mg/kg	9	5	6	8	5
Cadmium	mg/kg	0.6	<0.4	<0.4	<0.4	1
Chromium	mg/kg	12	14	16	14	14
Copper	mg/kg	140	24	39	26	24
Lead	mg/kg	900	30	160	37	92
Mercury	mg/kg	<0.1	<0.1	<0.1	0.2	0.2
Nickel	mg/kg	8	3	11	7	8
Zinc	mg/kg	450	71	160	71	180

Acid Extractable metals in soil Our Reference: Your Reference	UNITS ----- -	160829-8 5008/BH105/	160829-10 5008/SP01	160829-11 5008/SS01	160829-12 5008/SS02	160829-13 5008/SS03
Depth	-----	0.15	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	31/01/2017	31/01/2017	31/01/2017	31/01/2017	31/01/2017
Arsenic	mg/kg	8	9	9	20	6
Cadmium	mg/kg	<0.4	1	1	2	<0.4
Chromium	mg/kg	15	20	25	14	14
Copper	mg/kg	25	110	64	61	29
Lead	mg/kg	32	290	240	160	82
Mercury	mg/kg	<0.1	0.1	0.1	<0.1	0.4
Nickel	mg/kg	7	9	14	11	11
Zinc	mg/kg	62	730	610	2,400	160

Acid Extractable metals in soil						
Our Reference:	UNITS	160829-14	160829-15	160829-16	160829-17	160829-18
Your Reference	-----	5008/SS04	5008/SS05	5008/SS06	5008/SS07	5008/SS08
	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	31/01/2017	31/01/2017	31/01/2017	31/01/2017	31/01/2017
Arsenic	mg/kg	15	19	18	6	<4
Cadmium	mg/kg	0.8	3	5.2	<0.4	<0.4
Chromium	mg/kg	14	34	21	15	5
Copper	mg/kg	33	75	130	34	21
Lead	mg/kg	110	620	160	110	30
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	13	31	28	7	2
Zinc	mg/kg	500	2,100	4,400	240	80

Acid Extractable metals in soil						
Our Reference:	UNITS	160829-19	160829-20	160829-21	160829-22	160829-23
Your Reference	-----	5008/SS09	5008/SS10	5008/SS11	5008/SS12	5008/SS13
	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	31/01/2017	31/01/2017	31/01/2017	31/01/2017	31/01/2017
Arsenic	mg/kg	6	<4	7	7	4
Cadmium	mg/kg	<0.4	0.7	<0.4	<0.4	0.6
Chromium	mg/kg	15	13	19	16	15
Copper	mg/kg	21	40	32	21	28
Lead	mg/kg	110	79	87	49	110
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	6	51	9	6	6
Zinc	mg/kg	110	260	150	92	110

Acid Extractable metals in soil						
Our Reference:	UNITS	160829-24	160829-25	160829-26	160829-27	160829-28
Your Reference	-----	5008/SS14	5008/SS15	5008/SS16	5008/SS17	5008/SS18
	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	31/01/2017	31/01/2017	31/01/2017	31/01/2017	31/01/2017
Arsenic	mg/kg	<4	7	<4	<4	12
Cadmium	mg/kg	0.9	1	0.6	<0.4	4
Chromium	mg/kg	13	22	13	9	27
Copper	mg/kg	46	44	29	16	140
Lead	mg/kg	300	1,200	470	210	300
Mercury	mg/kg	<0.1	0.1	<0.1	<0.1	0.2
Nickel	mg/kg	9	7	5	4	13
Zinc	mg/kg	350	870	380	170	1,200

Acid Extractable metals in soil						
Our Reference:	UNITS	160829-29	160829-30	160829-31	160829-32	160829-33
Your Reference	-----	5008/SS19	5008/SS20	5008/SS21	5008/SS22	5008/SS23
	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	31/01/2017	31/01/2017	31/01/2017	31/01/2017	31/01/2017
Arsenic	mg/kg	17	12	5	8	8
Cadmium	mg/kg	1	0.8	0.7	0.7	2
Chromium	mg/kg	17	16	29	28	24
Copper	mg/kg	56	31	38	51	130
Lead	mg/kg	280	530	600	1,200	400
Mercury	mg/kg	<0.1	<0.1	0.1	<0.1	0.1
Nickel	mg/kg	14	13	10	9	23
Zinc	mg/kg	450	790	860	1,800	750

Acid Extractable metals in soil						
Our Reference:	UNITS	160829-34	160829-35	160829-36	160829-37	160829-38
Your Reference	-----	5008/SS24	5008/SS25	5008/SS26	5008/SS27	5008/SS28
	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	31/01/2017	31/01/2017	31/01/2017	31/01/2017	31/01/2017
Arsenic	mg/kg	56	55	28	18	28
Cadmium	mg/kg	2	0.8	0.7	1	1
Chromium	mg/kg	33	19	14	19	20
Copper	mg/kg	42	32	27	60	92
Lead	mg/kg	250	320	260	640	600
Mercury	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Nickel	mg/kg	23	10	8	12	14
Zinc	mg/kg	710	470	820	1,100	690

Acid Extractable metals in soil						
Our Reference:	UNITS	160829-39	160829-40	160829-41	160829-42	160829-43
Your Reference	-----	5008/SS29	5008/SS30	5008/DUP01	5008/DUP02	5008/DUP03
	-					
Depth	-----	-	-	-	-	-
Date Sampled		24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	31/01/2017	31/01/2017	31/01/2017	31/01/2017	31/01/2017
Arsenic	mg/kg	17	10	5	13	60
Cadmium	mg/kg	0.8	<0.4	<0.4	1	1
Chromium	mg/kg	24	16	12	24	24
Copper	mg/kg	44	35	35	63	47
Lead	mg/kg	450	120	150	220	280
Mercury	mg/kg	<0.1	<0.1	0.2	<0.1	0.2
Nickel	mg/kg	17	12	6	16	15
Zinc	mg/kg	670	280	160	410	650

Moisture Our Reference: Your Reference	UNITS ----- -	160829-1 5008/BH101/	160829-2 5008/BH101/	160829-3 5008/BH102/	160829-5 5008/BH103/	160829-6 5008/BH104/
Depth Date Sampled Type of sample	----- - soil	0.2 24/01/2017 soil	0.3 24/01/2017 soil	0.2 24/01/2017 soil	0.2 24/01/2017 soil	0.2 24/01/2017 soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Moisture	%	8.7	15	14	11	26

Moisture Our Reference: Your Reference	UNITS ----- -	160829-8 5008/BH105/	160829-10 5008/SP01	160829-11 5008/SS01	160829-12 5008/SS02	160829-13 5008/SS03
Depth Date Sampled Type of sample	----- - soil	0.15 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Moisture	%	24	6.8	11	21	5.7

Moisture Our Reference: Your Reference	UNITS ----- -	160829-14 5008/SS04	160829-15 5008/SS05	160829-16 5008/SS06	160829-17 5008/SS07	160829-18 5008/SS08
Depth Date Sampled Type of sample	----- - soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Moisture	%	7.0	8.2	18	9.0	2.5

Moisture Our Reference: Your Reference	UNITS ----- -	160829-19 5008/SS09	160829-20 5008/SS10	160829-21 5008/SS11	160829-22 5008/SS12	160829-23 5008/SS13
Depth Date Sampled Type of sample	----- - soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Moisture	%	5.7	3.8	6.8	11	1.8

Moisture Our Reference: Your Reference	UNITS ----- -	160829-24 5008/SS14	160829-25 5008/SS15	160829-26 5008/SS16	160829-27 5008/SS17	160829-28 5008/SS18
Depth Date Sampled Type of sample	----- - soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Moisture	%	10	8.0	5.8	5.4	21

Moisture Our Reference: Your Reference	UNITS ----- -	160829-29 5008/SS19	160829-30 5008/SS20	160829-31 5008/SS21	160829-32 5008/SS22	160829-33 5008/SS23
Depth Date Sampled Type of sample	----- - soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Moisture	%	10	10	10	11	17

Moisture Our Reference: Your Reference	UNITS ----- -	160829-34 5008/SS24	160829-35 5008/SS25	160829-36 5008/SS26	160829-37 5008/SS27	160829-38 5008/SS28
Depth Date Sampled Type of sample	----- - soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Moisture	%	16	8.6	11	9.7	6.6

Moisture Our Reference: Your Reference	UNITS ----- -	160829-39 5008/SS29	160829-40 5008/SS30	160829-41 5008/DUP01	160829-42 5008/DUP02	160829-43 5008/DUP03
Depth Date Sampled Type of sample	----- - soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil	- 24/01/2017 soil
Date prepared	-	27/01/2017	27/01/2017	27/01/2017	27/01/2017	27/01/2017
Date analysed	-	30/01/2017	30/01/2017	30/01/2017	30/01/2017	30/01/2017
Moisture	%	5.7	9.7	5.9	10	16

Asbestos ID - materials			
Our Reference:	UNITS	160829-44	160829-45
Your Reference	-----	5008/ASB01	5008/ASB02
	-		
Depth	-----	-	-
Date Sampled		24/01/2017	24/01/2017
Type of sample		material	material
Date analysed	-	30/01/2017	30/01/2017
Mass / Dimension of Sample	-	64x50x5mm	99x56x5mm
Sample Description	-	Grey compressed fibre cement material	Beige layered fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Organic fibres detected

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.

Method ID	Methodology Summary
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			27/01/2017	160829-11	27/01/2017 27/01/2017	LCS-7	27/01/2017
Date analysed	-			31/01/2017	160829-11	30/01/2017 30/01/2017	LCS-7	31/01/2017
TRHC ₆ - C ₉	mg/kg	25	Org-016	<25	160829-11	<25 <25	LCS-7	104%
TRHC ₆ - C ₁₀	mg/kg	25	Org-016	<25	160829-11	<25 <25	LCS-7	104%
Benzene	mg/kg	0.2	Org-016	<0.2	160829-11	<0.2 <0.2	LCS-7	98%
Toluene	mg/kg	0.5	Org-016	<0.5	160829-11	<0.5 <0.5	LCS-7	97%
Ethylbenzene	mg/kg	1	Org-016	<1	160829-11	<1 <1	LCS-7	109%
m+p-xylene	mg/kg	2	Org-016	<2	160829-11	<2 <2	LCS-7	109%
o-Xylene	mg/kg	1	Org-016	<1	160829-11	<1 <1	LCS-7	109%
naphthalene	mg/kg	1	Org-014	<1	160829-11	<1 <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	89	160829-11	104 109 RPD: 5	LCS-7	95%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH (C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			27/01/2017	160829-11	27/01/2017 27/01/2017	LCS-7	27/01/2017
Date analysed	-			28/01/2017	160829-11	28/01/2017 28/01/2017	LCS-7	28/01/2017
TRHC ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	160829-11	<50 <50	LCS-7	108%
TRHC ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	160829-11	<100 <100	LCS-7	105%
TRHC ₂₈ - C ₃₆	mg/kg	100	Org-003	<100	160829-11	220 200 RPD: 10	LCS-7	121%
TRH>C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	160829-11	<50 <50	LCS-7	108%
TRH>C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	160829-11	200 180 RPD: 11	LCS-7	105%
TRH>C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	160829-11	120 110 RPD: 9	LCS-7	121%
Surrogate o-Terphenyl	%		Org-003	77	160829-11	76 76 RPD: 0	LCS-7	91%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			27/01/2017	160829-11	27/01/2017 27/01/2017	LCS-7	27/01/2017
Date analysed	-			30/01/2017	160829-11	30/01/2017 30/01/2017	LCS-7	30/01/2017
Naphthalene	mg/kg	0.1	Org-012	<0.1	160829-11	<0.1 <0.1	LCS-7	100%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	160829-11	<0.1 <0.1	LCS-7	113%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	160829-11	0.1 <0.1	LCS-7	116%
Anthracene	mg/kg	0.1	Org-012	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	160829-11	0.3 0.2 RPD: 40	LCS-7	104%
Pyrene	mg/kg	0.1	Org-012	<0.1	160829-11	0.4 0.2 RPD: 67	LCS-7	103%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	160829-11	0.2 <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	160829-11	0.2 0.1 RPD: 67	LCS-7	97%
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	160829-11	0.3 <0.2	[NR]	[NR]

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	160829-11	0.2 0.09 RPD: 76	LCS-7	95%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	160829-11	0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	160829-11	0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	91	160829-11	79 82 RPD: 4	LCS-7	112%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		
Date extracted	-			27/01/2017	160829-11	27/01/2017 27/01/2017	LCS-7	27/01/2017
Date analysed	-			27/01/2017	160829-11	27/01/2017 27/01/2017	LCS-7	27/01/2017
HCB	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	LCS-7	89%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	LCS-7	96%
Heptachlor	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	LCS-7	88%
delta-BHC	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	LCS-7	90%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	LCS-7	93%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	LCS-7	96%
Dieldrin	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	LCS-7	98%
Endrin	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	LCS-7	121%
pp-DDD	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	LCS-7	98%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	LCS-7	78%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	89	160829-11	91 95 RPD: 4	LCS-7	120%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organophosphorus Pesticides						Base II Duplicate II %RPD		
Date extracted	-			27/01/2017	160829-11	27/01/2017 27/01/2017	LCS-7	27/01/2017
Date analysed	-			27/01/2017	160829-11	27/01/2017 27/01/2017	LCS-7	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	LCS-7	102%
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	LCS-7	120%
Dimethoate	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	LCS-7	88%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	LCS-7	97%
Malathion	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	LCS-7	92%
Parathion	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	LCS-7	110%
Ronnel	mg/kg	0.1	Org-008	<0.1	160829-11	<0.1 <0.1	LCS-7	120%
Surrogate TCMX	%		Org-008	89	160829-11	91 95 RPD: 4	LCS-7	90%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			27/01/2017	160829-11	27/01/2017 27/01/2017	LCS-7	27/01/2017
Date analysed	-			27/01/2017	160829-11	27/01/2017 27/01/2017	LCS-7	27/01/2017
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	160829-11	<0.1 <0.1	LCS-7	107%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	160829-11	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	89	160829-11	91 95 RPD: 4	LCS-7	90%

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base Duplicate %RPD		
Date prepared	-			27/01/2017	160829-11	27/01/2017 27/01/2017	LCS-7	27/01/2017
Date analysed	-			31/01/2017	160829-11	31/01/2017 31/01/2017	LCS-7	31/01/2017
Arsenic	mg/kg	4	Metals-020	<4	160829-11	9 8 RPD: 12	LCS-7	115%
Cadmium	mg/kg	0.4	Metals-020	<0.4	160829-11	1 2 RPD: 67	LCS-7	107%
Chromium	mg/kg	1	Metals-020	<1	160829-11	25 24 RPD: 4	LCS-7	111%
Copper	mg/kg	1	Metals-020	<1	160829-11	64 64 RPD: 0	LCS-7	111%
Lead	mg/kg	1	Metals-020	<1	160829-11	240 240 RPD: 0	LCS-7	97%
Mercury	mg/kg	0.1	Metals-021	<0.1	160829-11	0.1 0.1 RPD: 0	LCS-7	95%
Nickel	mg/kg	1	Metals-020	<1	160829-11	14 15 RPD: 7	LCS-7	101%
Zinc	mg/kg	1	Metals-020	<1	160829-11	610 670 RPD: 9	LCS-7	105%
QUALITYCONTROL vTRH(C6-C10)/BTExNin Soil	UNITS	Dup. Sm#		Duplicate Base + Duplicate + %RPD				
Date extracted	-	160829-20		27/01/2017 27/01/2017				
Date analysed	-	160829-20		30/01/2017 30/01/2017				
TRHC ₆ - C ₉	mg/kg	160829-20		<25 <25				
TRHC ₆ - C ₁₀	mg/kg	160829-20		<25 <25				
Benzene	mg/kg	160829-20		<0.2 <0.2				
Toluene	mg/kg	160829-20		<0.5 <0.5				
Ethylbenzene	mg/kg	160829-20		<1 <1				
m+p-xylene	mg/kg	160829-20		<2 <2				
o-Xylene	mg/kg	160829-20		<1 <1				
naphthalene	mg/kg	160829-20		<1 <1				
Surrogate aaa-Trifluorotoluene	%	160829-20		105 107 RPD: 2				
QUALITYCONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#		Duplicate Base + Duplicate + %RPD				
Date extracted	-	160829-20		27/01/2017 27/01/2017				
Date analysed	-	160829-20		28/01/2017 28/01/2017				
TRHC ₁₀ - C ₁₄	mg/kg	160829-20		<50 <50				
TRHC ₁₅ - C ₂₈	mg/kg	160829-20		<100 <100				
TRHC ₂₉ - C ₃₆	mg/kg	160829-20		<100 <100				
TRH>C ₁₀ -C ₁₆	mg/kg	160829-20		<50 <50				
TRH>C ₁₆ -C ₃₄	mg/kg	160829-20		<100 <100				
TRH>C ₃₄ -C ₄₀	mg/kg	160829-20		<100 <100				
Surrogate o-Terphenyl	%	160829-20		73 73 RPD: 0				

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date extracted	-	160829-20	27/01/2017 27/01/2017		
Date analysed	-	160829-20	30/01/2017 30/01/2017		
Naphthalene	mg/kg	160829-20	<0.1 <0.1		
Acenaphthylene	mg/kg	160829-20	<0.1 <0.1		
Acenaphthene	mg/kg	160829-20	<0.1 <0.1		
Fluorene	mg/kg	160829-20	<0.1 <0.1		
Phenanthrene	mg/kg	160829-20	0.4 0.1 RPD: 120		
Anthracene	mg/kg	160829-20	<0.1 <0.1		
Fluoranthene	mg/kg	160829-20	0.7 0.1 RPD: 150		
Pyrene	mg/kg	160829-20	0.6 0.2 RPD: 100		
Benzo(a)anthracene	mg/kg	160829-20	0.2 <0.1		
Chrysene	mg/kg	160829-20	0.2 <0.1		
Benzo(b,j,k)fluoranthene	mg/kg	160829-20	0.3 <0.2		
Benzo(a)pyrene	mg/kg	160829-20	0.2 0.05 RPD: 120		
Indeno(1,2,3-c,d)pyrene	mg/kg	160829-20	<0.1 <0.1		
Dibenzo(a,h)anthracene	mg/kg	160829-20	<0.1 <0.1		
Benzo(g,h,i)perylene	mg/kg	160829-20	<0.1 <0.1		
Surrogate p-Terphenyl-d14	%	160829-20	88 87 RPD: 1		
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	160829-20	27/01/2017 27/01/2017	LCS-8	27/01/2017
Date analysed	-	160829-20	27/01/2017 27/01/2017	LCS-8	27/01/2017
HCB	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	160829-20	<0.1 <0.1	LCS-8	95%
gamma-BHC	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	160829-20	<0.1 <0.1	LCS-8	108%
Heptachlor	mg/kg	160829-20	<0.1 <0.1	LCS-8	119%
delta-BHC	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	160829-20	<0.1 <0.1	LCS-8	94%
Heptachlor Epoxide	mg/kg	160829-20	<0.1 <0.1	LCS-8	99%
gamma-Chlordane	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	160829-20	<0.1 <0.1	LCS-8	99%
Dieldrin	mg/kg	160829-20	<0.1 <0.1	LCS-8	104%
Endrin	mg/kg	160829-20	<0.1 <0.1	LCS-8	120%
pp-DDD	mg/kg	160829-20	<0.1 <0.1	LCS-8	90%
Endosulfan II	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	160829-20	<0.1 <0.1	LCS-8	95%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Methoxychlor	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%	160829-20	92 87 RPD: 6	LCS-8	109%
QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	160829-20	27/01/2017 27/01/2017	LCS-8	27/01/2017
Date analysed	-	160829-20	27/01/2017 27/01/2017	LCS-8	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	160829-20	<0.1 <0.1	LCS-8	111%
Chlorpyrifos-methyl	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Diazinon	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Dichlorvos	mg/kg	160829-20	<0.1 <0.1	LCS-8	119%
Dimethoate	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Ethion	mg/kg	160829-20	<0.1 <0.1	LCS-8	108%
Fenitrothion	mg/kg	160829-20	<0.1 <0.1	LCS-8	121%
Malathion	mg/kg	160829-20	<0.1 <0.1	LCS-8	99%
Parathion	mg/kg	160829-20	<0.1 <0.1	LCS-8	114%
Ronnel	mg/kg	160829-20	<0.1 <0.1	LCS-8	120%
Surrogate TCMX	%	160829-20	92 87 RPD: 6	LCS-8	91%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	160829-20	27/01/2017 27/01/2017	LCS-8	27/01/2017
Date analysed	-	160829-20	27/01/2017 27/01/2017	LCS-8	27/01/2017
Aroclor 1016	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	160829-20	<0.1 <0.1	LCS-8	111%
Aroclor 1260	mg/kg	160829-20	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%	160829-20	92 87 RPD: 6	LCS-8	91%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	160829-20	27/01/2017 27/01/2017	LCS-8	27/01/2017
Date analysed	-	160829-20	31/01/2017 31/01/2017	LCS-8	31/01/2017
Arsenic	mg/kg	160829-20	<4 <4	LCS-8	114%
Cadmium	mg/kg	160829-20	0.7 0.8 RPD: 13	LCS-8	106%
Chromium	mg/kg	160829-20	13 14 RPD: 7	LCS-8	111%
Copper	mg/kg	160829-20	40 40 RPD: 0	LCS-8	111%
Lead	mg/kg	160829-20	79 73 RPD: 8	LCS-8	93%
Mercury	mg/kg	160829-20	<0.1 <0.1	LCS-8	93%
Nickel	mg/kg	160829-20	51 51 RPD: 0	LCS-8	101%
Zinc	mg/kg	160829-20	260 340 RPD: 27	LCS-8	104%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	160829-12	27/01/2017
Date analysed	-	[NT]	[NT]	160829-12	30/01/2017
TRHC ₆ - C ₉	mg/kg	[NT]	[NT]	160829-12	98%
TRHC ₆ - C ₁₀	mg/kg	[NT]	[NT]	160829-12	98%
Benzene	mg/kg	[NT]	[NT]	160829-12	108%
Toluene	mg/kg	[NT]	[NT]	160829-12	102%
Ethylbenzene	mg/kg	[NT]	[NT]	160829-12	91%
m+p-xylene	mg/kg	[NT]	[NT]	160829-12	94%
o-Xylene	mg/kg	[NT]	[NT]	160829-12	95%
naphthalene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate aaa- Trifluorotoluene	%	[NT]	[NT]	160829-12	95%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	160829-12	27/01/2017
Date analysed	-	[NT]	[NT]	160829-12	28/01/2017
TRHC ₁₀ - C ₁₄	mg/kg	[NT]	[NT]	160829-12	128%
TRHC ₁₅ - C ₂₈	mg/kg	[NT]	[NT]	160829-12	103%
TRHC ₂₉ - C ₃₆	mg/kg	[NT]	[NT]	160829-12	#
TRH>C ₁₀ -C ₁₆	mg/kg	[NT]	[NT]	160829-12	128%
TRH>C ₁₆ -C ₃₄	mg/kg	[NT]	[NT]	160829-12	103%
TRH>C ₃₄ -C ₄₀	mg/kg	[NT]	[NT]	160829-12	#
Surrogate o-Terphenyl	%	[NT]	[NT]	160829-12	129%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	160829-12	27/01/2017
Date analysed	-	[NT]	[NT]	160829-12	30/01/2017
Naphthalene	mg/kg	[NT]	[NT]	160829-12	90%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	160829-12	95%
Phenanthrene	mg/kg	[NT]	[NT]	160829-12	93%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	160829-12	91%
Pyrene	mg/kg	[NT]	[NT]	160829-12	95%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	160829-12	82%
Benzo(b,j+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	160829-12	85%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	160829-12	113%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	160829-31	27/01/2017 27/01/2017	160829-12	27/01/2017
Date analysed	-	160829-31	27/01/2017 27/01/2017	160829-12	27/01/2017
HCB	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	160829-31	<0.1 <0.1	160829-12	84%
gamma-BHC	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	160829-31	<0.1 <0.1	160829-12	86%
Heptachlor	mg/kg	160829-31	<0.1 <0.1	160829-12	80%
delta-BHC	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	160829-31	<0.1 <0.1	160829-12	87%
Heptachlor Epoxide	mg/kg	160829-31	<0.1 <0.1	160829-12	90%
gamma-Chlordane	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	160829-31	0.1 0.1 RPD: 0	[NR]	[NR]
Endosulfan I	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	160829-31	<0.1 <0.1	160829-12	86%
Dieldrin	mg/kg	160829-31	<0.1 <0.1	160829-12	96%
Endrin	mg/kg	160829-31	<0.1 <0.1	160829-12	113%
pp-DDD	mg/kg	160829-31	<0.1 <0.1	160829-12	101%
Endosulfan II	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	160829-31	<0.1 <0.1	160829-12	91%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Methoxychlor	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%	160829-31	85 98 RPD: 14	160829-12	117%
QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	160829-31	27/01/2017 27/01/2017	160829-12	27/01/2017
Date analysed	-	160829-31	27/01/2017 27/01/2017	160829-12	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	160829-31	<0.1 <0.1	160829-12	132%
Chlorpyrifos-methyl	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
Diazinon	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
Dichlorvos	mg/kg	160829-31	<0.1 <0.1	160829-12	112%
Dimethoate	mg/kg	160829-31	<0.1 <0.1	[NR]	[NR]
Ethion	mg/kg	160829-31	<0.1 <0.1	160829-12	123%
Fenitrothion	mg/kg	160829-31	<0.1 <0.1	160829-12	123%
Malathion	mg/kg	160829-31	<0.1 <0.1	160829-12	117%
Parathion	mg/kg	160829-31	<0.1 <0.1	160829-12	136%
Ronnel	mg/kg	160829-31	<0.1 <0.1	160829-12	85%
Surrogate TCMX	%	160829-31	85 98 RPD: 14	160829-12	91%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	160829-12	27/01/2017
Date analysed	-	[NT]	[NT]	160829-12	27/01/2017
Aroclor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	[NT]	[NT]	160829-12	115%
Aroclor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	160829-12	91%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	160829-31	27/01/2017 27/01/2017	160829-12	27/01/2017
Date analysed	-	160829-31	31/01/2017 31/01/2017	160829-12	31/01/2017
Arsenic	mg/kg	160829-31	5 5 RPD: 0	160829-12	113%
Cadmium	mg/kg	160829-31	0.7 0.8 RPD: 13	160829-12	106%
Chromium	mg/kg	160829-31	29 23 RPD: 23	160829-12	109%
Copper	mg/kg	160829-31	38 38 RPD: 0	160829-12	114%
Lead	mg/kg	160829-31	600 940 RPD: 44	160829-12	72%
Mercury	mg/kg	160829-31	0.1 0.1 RPD: 0	160829-12	89%
Nickel	mg/kg	160829-31	10 7 RPD: 35	160829-12	102%
Zinc	mg/kg	160829-31	860 920 RPD: 7	160829-12	78%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	160829-40	27/01/2017 27/01/2017	160829-32	27/01/2017
Date analysed	-	160829-40	27/01/2017 27/01/2017	160829-32	27/01/2017
HCB	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	160829-40	<0.1 <0.1	160829-32	95%
gamma-BHC	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	160829-40	<0.1 <0.1	160829-32	101%
Heptachlor	mg/kg	160829-40	3.0 3.1 RPD: 3	160829-32	85%
delta-BHC	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	160829-40	<0.1 <0.1	160829-32	93%
Heptachlor Epoxide	mg/kg	160829-40	1.5 1.4 RPD: 7	160829-32	97%
gamma-Chlordane	mg/kg	160829-40	4.6 4.7 RPD: 2	[NR]	[NR]
alpha-chlordane	mg/kg	160829-40	0.7 0.7 RPD: 0	[NR]	[NR]
Endosulfan I	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	160829-40	<0.1 <0.1	160829-32	101%
Dieldrin	mg/kg	160829-40	<0.1 <0.1	160829-32	110%
Endrin	mg/kg	160829-40	<0.1 <0.1	160829-32	102%
pp-DDD	mg/kg	160829-40	<0.1 <0.1	160829-32	126%
Endosulfan II	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	160829-40	<0.1 <0.1	160829-32	92%
Methoxychlor	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%	160829-40	91 92 RPD: 1	160829-32	111%

Client Reference: P1505008COC01V01

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	160829-40	27/01/2017 27/01/2017	160829-32	27/01/2017
Date analysed	-	160829-40	27/01/2017 27/01/2017	160829-32	27/01/2017
Azinphos-methyl (Guthion)	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	160829-40	1.6 1.6 RPD: 0	160829-32	130%
Chlorpyrifos-methyl	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
Diazinon	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
Dichlorvos	mg/kg	160829-40	<0.1 <0.1	160829-32	114%
Dimethoate	mg/kg	160829-40	<0.1 <0.1	[NR]	[NR]
Ethion	mg/kg	160829-40	<0.1 <0.1	160829-32	122%
Fenitrothion	mg/kg	160829-40	<0.1 <0.1	160829-32	120%
Malathion	mg/kg	160829-40	<0.1 <0.1	160829-32	140%
Parathion	mg/kg	160829-40	<0.1 <0.1	160829-32	140%
Ronnel	mg/kg	160829-40	<0.1 <0.1	160829-32	74%
Surrogate TCMX	%	160829-40	91 92 RPD: 1	160829-32	102%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	160829-32	27/01/2017
Date analysed	-	[NT]	[NT]	160829-32	27/01/2017
Aroclor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	[NT]	[NT]	160829-32	113%
Aroclor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	160829-32	113%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	160829-40	27/01/2017 27/01/2017	160829-32	27/01/2017
Date analysed	-	160829-40	31/01/2017 31/01/2017	160829-32	31/01/2017
Arsenic	mg/kg	160829-40	10 9 RPD: 11	160829-32	94%
Cadmium	mg/kg	160829-40	<0.4 <0.4	160829-32	98%
Chromium	mg/kg	160829-40	16 17 RPD: 6	160829-32	93%
Copper	mg/kg	160829-40	35 31 RPD: 12	160829-32	104%
Lead	mg/kg	160829-40	120 130 RPD: 8	160829-32	#
Mercury	mg/kg	160829-40	<0.1 <0.1	160829-32	88%
Nickel	mg/kg	160829-40	12 11 RPD: 9	160829-32	94%
Zinc	mg/kg	160829-40	280 280 RPD: 0	160829-32	#

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	160829-41	27/01/2017 27/01/2017
Date analysed	-	160829-41	31/01/2017 31/01/2017
Arsenic	mg/kg	160829-41	5 4 RPD: 22
Cadmium	mg/kg	160829-41	<0.4 <0.4
Chromium	mg/kg	160829-41	12 12 RPD: 0
Copper	mg/kg	160829-41	35 32 RPD: 9
Lead	mg/kg	160829-41	150 150 RPD: 0
Mercury	mg/kg	160829-41	0.2 0.2 RPD: 0
Nickel	mg/kg	160829-41	6 6 RPD: 0
Zinc	mg/kg	160829-41	160 160 RPD: 0

Report Comments:

s TRH in soil(semivol):

Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference.

PAH_Soil:

The RPD for duplicate results is accepted due to the non homogenous nature of the sample/s.

Sample contains rocks.

Acid Extractable Metals in Soil: # Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Asbestos ID was analysed by Approved Identifier:

Matt Tang

Asbestos ID was authorised by Approved Signatory:

Paul Ching

INS: Insufficient sample for this test

PQL: Practical Quantitation Limit

NT: Not tested

NR: Test not required

RPD: Relative Percent Difference

NA: Test not required

<: Less than

>: Greater than

LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

SOIL ANALYSIS CHAIN OF CUSTODY FORM

Additional Testing									
Name	P1505008 - DSI								
Martens Contact Officer	Robert Mehaffey		Contact Email	rmeahaffey@martens.com.au					
Sampling and Shipping	Sample Date	24 January 2017	Dispatch Date	25 January 2017		Turnaround Time		standard	
	Our Reference	P1505008COC01V01		Shipping Method (X)	Hand	Post	Courier	X	
	On Ice (X)	X	No Ice (X)		Other (X)				
Laboratory									
Name	EnviroLab								
Sample Delivery Address	12 Ashley Street, Chatswood								
Delivery Contact	Name	Aileen	Phone	9910 6200		Fax		Email	ahie@envirolabservices.com.au
Please Send Report By (X)	Post		Fax		Email	X	Reporting Email Address	rmeahaffey@martens.com.au ifulton@martens.com.au	

Sample ID	Combo 6	Combo 5b	Asbestos in Material	8HM	OC	OP	BTEX	TRH	HOLD
1 5008/BH101/0.2		X							
2 5008/BH101/0.3		X							
3 5008/BH102/0.2		X							
4 5008/BH102/0.3									
5 5008/BH103/0.2		X							X
6 5008/BH104/0.2		X							X
7 5008/BH104/0.5									
8 5008/BH105/0.15		X							X
9 5008/BH105/0.4									
10 5008/SP01		X							
11 5008/SS01	X								
12 5008/SS02	X								
13 5008/SS03	X								
14 5008/SS04	X								
15 5008/SS05	X								
16 5008/SS06	X								
17 5008/SS07	X								

ENVIROLAB
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 160829

Date Received: 25.1
Time Received: 15:30

Received by: JAG

Temp: Cool/Ambient

Cooling: Ice/Freepack

Security: intact/Broken/None

Page of

1604629

Sample ID	Combo 6	Combo 5b	Asbestos in Material	8HM	OC	OP	BTEX	TRH	HOLD
16	5008/SS08	X							
17	5008/SS09	X							
20	5008/SS10	X							
21	5008/SS11			X	X				
22	5008/SS12			X	X	X			
23	5008/SS13			X	X	X			
24	5008/SS14			X	X	X			
25	5008/SS15			X	X	X			
26	5008/SS16			X	X	X			
27	5008/SS17			X	X	X			
28	5008/SS18			X	X	X			
29	5008/SS19			X	X	X			
30	5008/SS20			X	X	X			
31	5008/SS21			X	X	X			
32	5008/SS22			X	X	X			
33	5008/SS23			X	X	X			
34	5008/SS24			X	X	X			
35	5008/SS25			X	X	X			
36	5008/SS26			X	X	X			
37	5008/SS27			X	X	X			
38	5008/SS28			X	X	X			
39	5008/SS29			X	X	X			
40	5008/SS30			X	X	X			
41	5008/DUP01			X					
42	5008/DUP02			X					
43	5008/DUP03			X					
44	5008/ASB01		X						
45	5008/ASB02		X						
46	Trip Blank								
47	Trio Spike						X	X	



12 Ashley Street, Chatswood, NSW 2067
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email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS

160829-A

Client:

Martens & Associates Pty Ltd
Suite 201, 20 George St
Hornsby
NSW 2077

Attention: Robert Hehaffey

Sample log in details:

Your Reference:	P1505008COC01V01
No. of samples:	2 materials 45 soils
Date samples received / completed instructions received	25/01/17 / 14/02/17

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	21/02/17 / 17/02/17
Date of Preliminary Report:	Not Issued

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Accredited for compliance with ISO/IEC 17025 - Testing

Tests not covered by NATA are denoted with *.

Results Approved By:

David Springer
General Manager



Envirolab Reference: 160829-A
Revision No: R 00

Metals in TCLP USEPA 1311						
Our Reference:	UNITS	160829-A-1	160829-A-3	160829-A-10	160829-A-11	160829-A-12
Your Reference	-----	5008/BH101/	5008/BH102/	5008/SP01	5008/SS01	5008/SS02
Depth	-					
Date Sampled	-----	0.2	0.2	-	-	-
Type of sample		24/01/2017 soil	24/01/2017 soil	24/01/2017 soil	24/01/2017 soil	24/01/2017 soil
Date extracted	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017	15/02/2017
Date analysed	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017	15/02/2017
pH of soil for fluid# determ.	pH units	6.7	6.8	5.8	6.0	5.9
pH of soil TCLP (after HCl)	pH units	1.5	1.5	1.5	1.5	1.7
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	4.9	4.9
Lead in TCLP	mg/L	0.51	0.07	0.1	0.04	<0.03

Metals in TCLP USEPA 1311						
Our Reference:	UNITS	160829-A-14	160829-A-15	160829-A-16	160829-A-17	160829-A-19
Your Reference	-----	5008/SS04	5008/SS05	5008/SS06	5008/SS07	5008/SS09
Depth	-					
Date Sampled	-----	-	-	-	-	-
Type of sample		24/01/2017 soil	24/01/2017 soil	24/01/2017 soil	24/01/2017 soil	24/01/2017 soil
Date extracted	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017	15/02/2017
Date analysed	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017	15/02/2017
pH of soil for fluid# determ.	pH units	6.2	6.5	6.0	5.9	4.9
pH of soil TCLP (after HCl)	pH units	1.5	1.6	1.5	1.5	1.5
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	4.9	4.9
Lead in TCLP	mg/L	<0.03	0.09	<0.03	<0.03	<0.03

Metals in TCLP USEPA 1311						
Our Reference:	UNITS	160829-A-20	160829-A-23	160829-A-24	160829-A-25	160829-A-26
Your Reference	-----	5008/SS10	5008/SS13	5008/SS14	5008/SS15	5008/SS16
Depth	-					
Date Sampled	-----	-	-	-	-	-
Type of sample		24/01/2017 soil	24/01/2017 soil	24/01/2017 soil	24/01/2017 soil	24/01/2017 soil
Date extracted	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017	15/02/2017
Date analysed	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017	15/02/2017
pH of soil for fluid# determ.	pH units	4.7	6.5	6.5	6.5	6.0
pH of soil TCLP (after HCl)	pH units	1.5	1.5	1.6	1.6	1.5
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	4.9	4.9
Lead in TCLP	mg/L	[NA]	<0.03	0.06	0.52	0.2
Nickel in TCLP	mg/L	0.04	[NA]	[NA]	[NA]	[NA]

Metals in TCLP USEPA 1311						
Our Reference:	UNITS	160829-A-27	160829-A-28	160829-A-29	160829-A-30	160829-A-31
Your Reference	-----	5008/SS17	5008/SS18	5008/SS19	5008/SS20	5008/SS21
Depth	-	-	-	-	-	-
Date Sampled	-----	24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017	15/02/2017
Date analysed	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017	15/02/2017
pH of soil for fluid# determ.	pH units	5.9	6.0	6.5	6.4	5.7
pH of soil TCLP (after HCl)	pH units	1.5	1.5	1.5	1.5	1.5
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	4.9	4.9
Lead in TCLP	mg/L	0.1	0.05	0.06	0.53	0.38

Metals in TCLP USEPA 1311						
Our Reference:	UNITS	160829-A-32	160829-A-33	160829-A-34	160829-A-35	160829-A-36
Your Reference	-----	5008/SS22	5008/SS23	5008/SS24	5008/SS25	5008/SS26
Depth	-	-	-	-	-	-
Date Sampled	-----	24/01/2017	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017	15/02/2017
Date analysed	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017	15/02/2017
pH of soil for fluid# determ.	pH units	5.2	6.1	6.1	5.6	6.2
pH of soil TCLP (after HCl)	pH units	1.5	1.6	1.5	1.5	1.6
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	4.9	4.9
Lead in TCLP	mg/L	0.77	0.2	0.08	0.09	0.07

Metals in TCLP USEPA 1311					
Our Reference:	UNITS	160829-A-37	160829-A-38	160829-A-39	160829-A-40
Your Reference	-----	5008/SS27	5008/SS28	5008/SS29	5008/SS30
Depth	-	-	-	-	-
Date Sampled	-----	24/01/2017	24/01/2017	24/01/2017	24/01/2017
Type of sample		soil	soil	soil	soil
Date extracted	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017
Date analysed	-	15/02/2017	15/02/2017	15/02/2017	15/02/2017
pH of soil for fluid# determ.	pH units	5.7	6.7	5.8	5.5
pH of soil TCLP (after HCl)	pH units	1.6	1.5	1.5	1.5
Extraction fluid used	-	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	4.9
Lead in TCLP	mg/L	0.1	0.3	0.2	0.1

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

Client Reference: P1505008COC01V01

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base Duplicate %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/02/2017	160829-A-1	15/02/2017 15/02/2017	LCS-W1	15/02/2017
Date analysed	-			15/02/2017	160829-A-1	15/02/2017 15/02/2017	LCS-W1	15/02/2017
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03	160829-A-1	0.51 0.52 RPD: 2	LCS-W1	94%
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	97%
QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	Dup. Sm#		Duplicate Base + Duplicate + %RPD		Spike Sm#	Spike % Recovery	
Date extracted	-	160829-A-20		15/02/2017 15/02/2017		LCS-W2	15/02/2017	
Date analysed	-	160829-A-20		15/02/2017 15/02/2017		LCS-W2	15/02/2017	
Lead in TCLP	mg/L	[NT]		[NT]		LCS-W2	93%	
Nickel in TCLP	mg/L	160829-A-20		0.04 0.04 RPD: 0		LCS-W2	95%	
QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	Dup. Sm#		Duplicate Base + Duplicate + %RPD		Spike Sm#	Spike % Recovery	
Date extracted	-	160829-A-26		15/02/2017 15/02/2017		160829-A-3	15/02/2017	
Date analysed	-	160829-A-26		15/02/2017 15/02/2017		160829-A-3	15/02/2017	
Lead in TCLP	mg/L	160829-A-26		0.2 0.2 RPD: 0		160829-A-3	93%	
Nickel in TCLP	mg/L	[NT]		[NT]		[NR]	[NR]	
QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	Dup. Sm#		Duplicate Base + Duplicate + %RPD		Spike Sm#	Spike % Recovery	
Date extracted	-	160829-A-36		15/02/2017 15/02/2017		160829-A-27	15/02/2017	
Date analysed	-	160829-A-36		15/02/2017 15/02/2017		160829-A-27	15/02/2017	
Lead in TCLP	mg/L	160829-A-36		0.07 0.08 RPD: 13		160829-A-27	94%	
Nickel in TCLP	mg/L	[NT]		[NT]		[NR]	[NR]	

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test

NR: Test not required

<: Less than

PQL: Practical Quantitation Limit

RPD: Relative Percent Difference

>: Greater than

NT: Not tested

NA: Test not required

LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Simon Song

Subject:

FW: Results for Registration 160829 P1505008COC01V01

From: Jeff Fulton [mailto:JFulton@martens.com.au]
Sent: Tuesday, 14 February 2017 9:22 AM
To: Nancy Zhang <NZhang@envirolab.com.au>
Cc: Robert Mehaffey <rmehaffey@martens.com.au>
Subject: RE: Results for Registration 160829 P1505008COC01V01

Hi Nancy,

Can I please get the following samples retested for lead in TCLP:

- 5008/BH101/0.2 - 1
- 5008/BH102/0.2 - 3
- 5008/SP01 - 10
- 5008/SS01 - 11
- 5008/SS02 - 12
- 5008/SS04 - 14
- 5008/SS05 - 15
- 5008/SS06 - 16
- 5008/SS07 - 17
- 5008/SS09 - 19
- 5008/SS13 - 23
- 5008/SS14
- 5008/SS15
- 5008/SS16
- 5008/SS17
- 5008/SS18
- 5008/SS19
- 5008/SS20
- 5008/SS21
- 5008/SS22
- 5008/SS23
- 5008/SS24
- 5008/SS25
- 5008/SS26
- 5008/SS27
- 5008/SS28
- 5008/SS29
- 5008/SS30

And this sample tested for nickel in TCLP:

- 5008SS10

All standard turnaround please.

Thanks

Jeff

Jeff Fulton
Project Manager / Senior Engineer
BSc., Grad Cert Eng Sc.

160829 A.

Dec. 2.12